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一、所获奖项

1. 2022 年，西北农林科技大学首届研究生教育教学工作先进集体。
2. 2023 年，土壤物理与生态农业团队（邵明安导师团队）获评西北农林科技大学研究生优秀导师团队，周建斌教授、赵允格研究员获评优秀研究生导师。
3. 2022 年，吕家珑和谷洁教授获评优秀研究生导师。
4. 2021 年，环境污染控制与修复团队（张增强导师团队）获评西北农林科技大学研究生优秀导师团队，常庆瑞和梁东丽教授获评优秀研究生导师。
5. 2020 年，旱地土壤培肥与高效施肥团队（王朝辉导师团队）获评西北农林科技大学研究生优秀导师团队。
6. 2020 年，论文“黄土高原辽东栎枯落物分解的微生物作用机制”（作者：曾全超）获评陕西省优秀博士学位论文。
7. 2019 年，论文“黄土高原土壤大孔隙和土壤水分之间的关系研究”（作者：李同川）获评陕西省优秀博士学位论文。
8. 2019 年，第五届“互联网+”大学生创新创业大赛，国家银奖，教育部主办，浙江大学承办。
9. 2018 年，首届林业创新创业大赛，国家级金奖，林业与草原局主办，北京林业大学承办。
10. 2018 年，首届林业创新创业大赛，优秀指导教师，林业与草原局主办，北京林业大学承办。
11. 2018 年，第五届 i 创达人创新创业比赛，国赛亚军，北京大学主办。
12. 2017 级硕士研究生贾利霞荣获清华大学钱易环境奖。
13. 2019 级博士研究生王瑞刚获得高廷耀基金会青年博士生杰出人才奖学金。
14. 2020 级博士研究生丁玲获北京大学唐孝炎环境科学创新奖。

1. <https://news.nwafu.edu.cn/xnxw/85bbaea09fc04daf9057d114f46d33fa.htm>

学校召开研究生教育教学工作考核交流会



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学校召开研究生教育教学工作考核交流会

来源: 研究生院 作者: 王小航 贾一波/文 霍孟臣 /图 发布日期: 2022-07-26 浏览次数: 0

"今年9月份, 研究生规模将超过15000人, 我们将迎来学校研究生教育新的发展阶段和历史机遇, 同时, 研究生教育综合改革进入深水区, 面临疫情影响和各种风险挑战, 这对我们的治理能力和水平提出考验。组织考核交流会, 就是围绕校院两级管理, 提高质量水平。" 7月23日下午, 学校召开2021-2022学年研究生教育教学工作考核交流会, 副校长陈玉林主持会议并提出要求。研究生教育督导组代表、部分职能处室负责人、研究生培养学院(所)负责人、研究生秘书、研究生院全体人员等60余人参加会议。



会上, 研究生培养学院(所)围绕《研究生教育综合改革实施方案(2020-2025)》《专业学位研究生教育改革实施意见(2020-2025)》、“十四五”发展规划和“双一流”建设中研究生教育工作、学校2021-2022学年工作要点等内容, 着重就人才培养情况、研究生教育创新性工作、存在问题及下一步工作思路等内容作了详细汇报交流。经考核专家现场打分, 最终农学院、植物保护学院、资源环境学院、机械与电子工程学院和生命科学学院荣获“2021-2022学年研究生教育教学工作先进集体”, 食品科学与工程学院、动物科技学院、风景园林艺术学院、葡萄酒学院和水利与建筑工程学院荣获“2021-2022学年研究生教育教学工作特色奖”, 顾丹丹等26名同志获评“2021-2022学年研究生教育教学工作先进个人”。



西北农林科技大学
NORTHWEST AAF UNIVERSITY

2021-2022 学年研究生教育教学工作

先进集体

研究生院 党委研究生工作部

二〇二二年七月

通 知

关于第四届研究生优秀导师和团队 评选结果的公示

各单位：

根据《西北农林科技大学研究生优秀导师和团队评选办法》（校研发〔2021〕354号），以及“关于评选第四届研究生优秀导师和团队的通知”要求，学校组织开展了第四届研究生优秀导师和团队评选工作。经学院推荐、形式审查、材料展示、专家评选等环节，共评选出优秀导师20名，优秀导师团队10个。现将评选结果予以公示，公示时间：7月3日-7日。

公示期间，任何单位或者个人如对公示有异议，均可向研究生院实名反映。联系电话：87080153 电子邮箱：xwgl@nwsuaf.edu.cn

优秀导师和团队名单（按姓氏笔画）：

优秀导师：

于修焯	马保华	王 昕	王晓杰	王 瑶
冯佰利	刘天军	刘树文	李明军	李 毅
吴云锋	吴淑芳	邱 凌	张 红	陈明训
<u>周建斌</u>	<u>赵允格</u>	赵善廷	洪 波	曹 蔚

优秀导师团队：

生物农药创制及应用导师团队（马志卿导师团队）

优质畜禽产品绿色加工与安全控制导师团队（吕欣导师团队）

葡萄酒酵母种质资源创新与产业化应用团队（刘延琳导师团队）

西部农村发展研究中心团队（阮俊虎导师团队）

果园作业机械研究导师团队（陈军导师团队）

土壤物理与生态农业团队（邵明安导师团队）

西部森林灾害防控与治理创新团队（贺虹导师团队）

西北农林科技大学文件

校研发〔2022〕233号

关于表彰第三届研究生优秀导师和团队的决定

为进一步加强研究生导师队伍建设，树立立德树人典范，加强师德师风建设，全面提高研究生培养质量，2022年5-7月学校组织开展了第三届研究生优秀导师和团队评选工作。经学院推荐、形式审查、材料展示、专家组现场评选、校党委会审定，共评选出罗军等21名优秀导师，肌肉生物学与猪遗传改良研究导师团队等10个优秀导师团队。学校决定对以上获评优秀导师和团队予以表彰。

希望受到表彰的优秀导师和团队珍惜荣誉，进一步提升育人成效，充分发挥先进人物的引领示范作用和辐射带动作用，在全校营造铸魂育人良好风尚。希望全校导师以受表彰的优秀导师和团队为榜样，学习借鉴他们优秀的指导经验、高尚的师德师风和精湛的业务能力，切实履行立德树人职责，为提高我校研究生培养质量做出新贡献。

附件：第三届研究生优秀导师和团队名单



附件：

第三届研究生优秀导师和团队名单

优秀导师（21名）：

罗 军 霍学喜 姜 雨 裴志超 郭文川 王建龙 吕家珑
郭 军 王文龙 孙 超 何建强 宋松柏 王得祥 王 存
董娟娥 惠竹梅 石宝峰 温晓霞 赵宝玉 谷 洁 韩清芳

西北农林科技大学文件

校研发〔2022〕16号

关于表彰第二届研究生优秀导师和团队的决定

为进一步加强研究生导师队伍建设，树立立德树人典型，加强师德师风建设，提高研究生培养质量，2021年11月学校组织开展了第二届研究生优秀导师和团队评选工作。经学院推荐、形式审查、专家组现场评选、校党委会审定，共评选出王俊儒等21名优秀导师，王西平导师团队等10个优秀导师团队。学校对以上优秀导师和团队予以表彰。

希望受到表彰的优秀导师和团队珍惜荣誉，进一步提升育人成效，充分发挥引领示范作用。希望全校导师以受表彰的优秀导师和团队为榜样，学习借鉴他们优秀的指导经验、高尚的师德师风和精湛的业务能力，切实履行立德树人职责，为提高研究生培养质量做出新贡献。

附件：第二届研究生优秀导师和团队名单



附件

第二届研究生优秀导师和团队名单 (按姓氏笔画)

优秀导师(21名):

王俊儒 方建斌 付少平 刘小林 杨增岐 何东健 宋卫宁
张 显 张硕新 张富仓 陆 迁 郁 飞 郭占锋 曹斌云
常庆瑞 梁东丽 栗晓玲 谢卫青 雷初朝 管清美 魏安智

优秀导师团队(10个):

葡萄种质创新与遗传育种团队(王西平团队)
农业生境系统过程模拟与管理团队(冯浩团队)
食品分子营养与健康创新团队(刘学波团队)
农业区域发展与循环农业团队(杨改河团队)
动物营养与健康养殖科技创新团队(杨小军团队)
环境污染控制与修复团队(张增强团队)
半干旱区森林培育技术创新团队(赵忠团队)

中共西北农林科技大学委员会文件

校党发〔2020〕115号

关于表彰2020年研究生教育优秀导师团队和优秀导师的决定

为进一步加强学校研究生导师队伍建设，树立先进典型，促进提升研究生培养质量，学校组织开展了2020年研究生教育优秀导师团队和优秀导师评选工作。经学院推荐、评选委员会评选、校党委会审定，共评选出康振生导师团队等10个优秀导师团队，单卫星等11名优秀导师。学校对以上优秀导师团队和优秀导师予以表彰。

希望受到表彰的优秀导师团队和优秀导师珍惜荣誉，不断进步，进一步提升育人成效。希望全校导师以受表彰的优秀导师团队和优秀导师为榜样，学习借鉴他们优秀的指导经验、高尚的师德师风品质和精湛的业务能力，切实履行立德树人职责，为全面提高学校人才培养质量做出新的贡献。

附件：2020年研究生教育优秀导师团队和优秀导师名单

中共西北农林科技大学委员会

2020年12月12日

附件：

西北农林科技大学 2020 年研究生教育优秀导师团队和 优秀导师名单

优秀导师团队（10 个）：

植物免疫研究团队（康振生导师团队）

抗病生物工程团队（张涌导师团队）

小麦远缘杂交与分子染色体工程育种团队（吉万全导师团队）

苹果逆境生物学团队（马锋旺导师团队）

绒肉羊遗传改良与种质创新团队（王小龙导师团队）

山地拓荒者团队（杨福增导师团队）

旱地土壤培肥与高效施肥团队（王朝辉导师团队）

农业与环境微生物团队（沈锡辉导师团队）



政府信息公开

【已结束】关于对2019年陕西省优秀博士学位论文评选结果进行公示的公告

日期: 2019-11-04 17:40:26 本站原创 人气: 38391
来源: [学位管理与研究生教育处 \(省政府学位委员会办公室\)](#)



根据《陕西省优秀博士学位论文评选办法》《关于做好2019年陕西省优秀博士学位论文评选工作的通知》(陕教位办〔2019〕1号), 陕西省教育厅、陕西省学位委员会组织开展了2019年省级优秀博士学位论文评选工作。经单位推荐、通讯评议和专家会议评审, 共评出2019年陕西省优秀博士学位论文99篇, 现将结果予以公示, 公示期为2019年11月4日至2019年12月3日。公示期内, 任何单位或者个人如对评审结果有异议, 请以书面形式实名向省教育厅学位管理与研究生教育处反映。

联系人: 邓晓宁

地址: 陕西省西安市长安南路563号

邮编: 710061

电话: 029-88668826 (传真)

附件: [2019年陕西省优秀博士学位论文公示名单](#)

陕西省教育厅 陕西省学位委员会

2019年11月4日

附件:

2019年陕西省优秀博士学位论文公示名单

序号	学科名称	学生姓名	学校代码	学校名称	论文题目
69	农业资源与环境	李同川	10712	西北农林科技大学	黄土高原土壤大孔隙和土壤水分之间的关系研究



政府信息公开

【已结束】关于对2020年陕西省优秀博士学位论文评选结果进行公示的公告

日期: 2020-12-22 12:42:05 本站原创 人气: 51849
来源: 学位管理与研究生教育处 (省政府学位委员会办公室)



根据《陕西省优秀博士学位论文评选办法》(陕教规范[2018]9号)《关于做好2020年陕西省优秀博士学位论文评选工作的通知》(陕教位办[2020]1号),陕西省教育厅、陕西省学位委员会组织开展了2020年省级优秀博士学位论文评选工作。经单位推荐、通讯评议、专家会议评审和厅务会审议,共评出2020年陕西省优秀博士学位论文99篇,现将结果予以公示,公示期为2020年12月22日至2021年1月21日。公示期内,任何单位或者个人如对评审结果有异议,请以书面形式实名向省教育厅学位管理与研究生教育处(省政府学位委员会办公室)反映。

联系人: 邓晓宁

地址: 陕西省西安市长安南路563号

邮编: 710061

电话: 029-88668826 (传真)

附件: 2020年陕西省优秀博士学位论文公示名单

陕西省教育厅
陕西省学位委员会
2020年12月22日

附件:

2020年陕西省优秀博士学位论文公示名单

序号	学校名称	一级学科名称	姓名	导师姓名	论文题目
78	西北农林科技大学	农业资源与环境	曾全超	安韶山	黄土高原辽东栎枯落物分解的微生物作用机制

教育部关于公布第五届中国“互联网+”大学生创新创业大赛获奖名单的通知

http://www.moe.gov.cn/srcsite/A08/s5672/202001/t20200102_414284.html



信息名称：教育部关于公布第五届中国“互联网+”大学生创新创业大赛获奖名单的通知
信息编号：260A08-07-2019-0027-生成日期：2019-12-24 发文机构：中华人民共和国教育部
1
英文文号：教高函〔2019〕16号 信息类别：高等教育
内容概述：教育部公布第五届中国“互联网+”大学生创新创业大赛获奖名单。

教育部关于公布第五届中国“互联网+”大学生创新创业大赛获奖名单的通知

教高函〔2019〕16号

各省、自治区、直辖市教育厅（教委），新疆生产建设兵团教育局，有关部门（单位）教育司（局），部属各高等学校、部省合建各高等学校：

为深入贯彻落实全国教育大会精神，加快培养创新创业人才，持续激发大学生创新创业热情，展示创新创业教育成果，搭建大学生创新创业项目与社会资源对接平台，教育部会同11个部委和浙江省人民政府于2019年3月至10月举办了第五届中国“互联网+”大学生创新创业大赛（以下简称大赛）。大赛全国总决赛于2019年10月13—15日在浙江大学圆满落幕，实现了“更全面、更国际、更中国、更教育、更创新”的办赛目标，打造了一场“百国千校”的世界大学生创新创业盛会。经过大赛专家委员会评审、组织委员会审定，并向社会公示无异议，最终结果如下：

- 一、高教主赛道省市优秀组织奖10个，高校集体奖21个，冠军1名、亚军1名、季军1名，单项奖项目3个，金奖项目67个、银奖项目140个、铜奖项目439个。
 - 二、“青年红色筑梦之旅”赛道省市优秀组织奖8个，高校集体奖23个，单项奖项目3个，金奖项目18个、银奖项目51个、铜奖项目134个。
 - 三、职教赛道单项奖项目1个，金奖项目18个、银奖项目50个、铜奖项目133个。
 - 四、国际赛道季军1名，金奖项目14个、银奖项目45个、铜奖项目215个。
 - 五、萌芽版块单项奖项目4个，创新潜力奖项目20个，成功入围全国总决赛项目208个。
- 现将以上获奖名单予以公布（见附件）。

请各地各高校深入学习贯彻习近平总书记关于教育的重要论述和全国教育大会精神，按照习近平总书记给大赛“青年红色筑梦之旅”大学生的重要回信精神、李克强总理关于推进大众创业万众创新的重要批示精神，把创新创业教育贯穿人才培养全过程，推动高校人才培养范式变革，大力提升学生的创新精神、创业意识和创新创业能力。要加强对大赛获奖选手的宣传表彰，塑造新时代双创优秀青年典型，持续壮大创新创业生力军，用创新创业的生动实践汇聚中华民族伟大复兴的强大力量。

- 附件：1.第五届中国“互联网+”大学生创新创业大赛全国总决赛高教主赛道获奖名单
2.第五届中国“互联网+”大学生创新创业大赛全国总决赛“青年红色筑梦之旅”赛道获奖名单
3.第五届中国“互联网+”大学生创新创业大赛全国总决赛职教赛道获奖名单
4.第五届中国“互联网+”大学生创新创业大赛全国总决赛国际赛道获奖名单
5.第五届中国“互联网+”大学生创新创业大赛全国总决赛萌芽版块获奖名单

教育部

2019年12月17日

附件1
第五届中国“互联网+”大学生创新创业大赛全国总决赛高教主赛道获奖名单

银奖					
序号	参赛项目	省份	学校	负责人	指导教师
187	锦华生态：重金属污染耕地治理技术及产业化开拓者	陕西省	西北农林科技大学	姜义亮	吴溪溪、彭晓蕾、李欣乐、孟泽华、王悦、李敏、刘丽斌、段国秀、田锦萱



全国林业创新创业大赛
National Forestry Innovation & Entrepreneurship Competition

获奖证书

首届全国林业创新创业大赛全国总决赛

金奖

获奖项目：土壤改良与修复技术服务

团队成员：姜义亮、刘丽斌、赵创德、王悦
赵俊霞、段国秀

指导老师：贾汉忠

参赛组别：院校组-自选类

国家林业和草原局
二〇二〇年十一月



荣誉证书

贾汉忠同志：

您在2018年西安高新“创青春”陕西省大学生创业
大赛中做出优异成绩，荣获优秀指导教师奖。

特发此证，以资鼓励。

2018年西安高新“创青春”
陕西省大学生创业大赛组委会
2018年5月



获奖证书

恭喜 土壤改良与修复技术服务 项目：

在第五届“i创达人”科技创新创业计划大赛全国
总决赛中，荣获 **亚军**

特发此证，以资鼓励。

项目合伙人：姜义亮 李欣乐 杨翔宇 王悦 彭晓蕾 孟泽华 刘丽斌 吴建强

北京大学生命科学学院
北京大学生命科学产业协会
二〇一九年五月二十五日

2017 级硕士研究生贾利霞荣获清华大学钱易环境奖
<https://mp.weixin.qq.com/s/JK6uU3i-Pt8MnQwPiPyr9Q>



第三届钱易环境奖获奖通知

钱易环境奖 钱易环境奖 2019-12-02 11:38

经为期一周的公示，钱易环境奖评审委员会宣布第三届钱易环境奖申报候选人获奖名单如下：

(按姓氏笔画排序)

一等奖（特等奖候选人：需要参加现场答辩，评选特等奖）：

马敏达（重庆大学）

刘彦伶（清华大学）

赵迪（南京大学）

贾利霞（西北农林科技大学）

康达（浙江大学）

2019 级博士研究生王瑞刚于 2022 年 9 月获得过高廷耀基金会青年博士生杰出人才奖学金

<http://stgef.cn/newsitem/36649>

第十九届 “青年博士生杰出人才奖学金” 获奖名单

2022-09-05 11:00:17 1525 次浏览

第十九届 “青年博士生杰出人才奖学金” 获奖名单

第十九届 “青年博士生杰出人才奖学金” 获奖名单

上海同济高廷耀环保科技发展基金会

“青年博士生杰出人才奖学金” 获奖名单

经终审专家委员会评审，最终确定以下 20 位博士生获得第十九

届 “青年博士生杰出人才奖学金”。（排名不分先后）

- | | |
|--------------|---------------|
| 王紫薇（湖南大学） | 王 红（电子科技大学） |
| 张 超（华南理工大学） | 许大毛（同济大学） |
| 徐润泽（河海大学） | 张 雪（哈尔滨工业大学） |
| 张 迪（同济大学） | 周 琦（北京大学） |
| 柳诗语（湖南大学） | 赵金秀（济南大学） |
| 林俊豪（哈尔滨工业大学） | 李 洋（同济大学） |
| 叶成松（厦门大学） | 杨 楠（河海大学） |
| 段丕俊（山东大学） | 李克俭（复旦大学） |
| 杨 芳（武汉理工大学） | 洪钦源（上海交通大学） |
| 樊志伟（北京工业大学） | 王瑞刚（西北农林科技大学） |

上海同济高廷耀环保科技发展基金会



2020 级博士研究生丁玲获得北京大学唐孝炎环境科学创新奖
<http://cese.pku.edu.cn/txyjxj/tzgg1/149253.htm>





北京大学
PEKING UNIVERSITY



环境科学与工程学院
COLLEGE OF ENVIRONMENTAL SCIENCE AND ENGINEERING

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第九届北京大学唐孝炎环境科学创新奖学金评审结果公示

发布时间: 2023-04-24 浏览次数: 2107

经学生自愿申报、唐孝炎环境科学创新奖学金评审委员会评审，第九届北京大学唐孝炎环境科学创新奖学金评审工作已经结束。

现对一、二、三等奖获奖学生进行公示（相同等级奖项内，按姓名拼音排序），本属特等奖将于奖学金交流会上通过7名一等奖同学的汇报进行现场评选。公示截止到2023年5月5日。如被公示对象存在相关问题，请通过电话、邮件等方式向我处反映。

联系方式为：
电话：010-62758782；邮件：txyscholarship@163.com

北京大学唐孝炎基金管理委员会
2023年4月24日

第九届唐孝炎环境科学创新奖获奖学生名单				
序号	姓名	类别	学校	获奖等级
1	刘斌	硕士生	南京大学	一等奖
2	刘旭廷	博士生	北京大学	
3	沈培德	博士生	复旦大学	
4	沈豪	博士生	清华大学	
5	杨静楠	博士生	湖南大学	
6	赵子耀	博士生	中国科学技术大学	
7	宗玲	博士生	同济大学	
8	陈俊鹏	博士生	郑州大学	
9	陈主才	博士生	天津大学	二等奖
10	王毅	博士生	西北农林科技大学	
11	杜文杰	博士生	中国科学技术大学	
12	刘博禹	硕士生	北京师范大学	
13	刘福洋	博士生	北京大学	
14	孙源泽	博士生	中国农业大学	
15	王智真	博士生	北京工业大学	
16	袁志航	博士生	上海交通大学	
17	张钰博	博士生	北京大学	

二、研究生思政教育情况

（一）党支部建设

1. 王朝辉老师获批全国“双带头人”党支部
2. 王朝辉老师团队分为各个教师和学生共建党支部情况
3. 地信系教工党支部和学生党支部开展联学联建情况

（二）研究生课程思政建设项目

1. 张青峰教授《现代地理信息系统技术》获批 2021 年陕西省课程思政建设项目
2. 2021 年获批两项校级课程思政标杆教改项目
3. 2022 年获批一项校级课程思政标杆教改项目
4. 2023 年获批两项校级课程思政标杆教改项目

信息名称： 教育部办公厅关于公布首批全国高校“双带头人”教师党支部书记工作室建设名单的通知
信息索引： 360A12-99-2018-0020-1 生成日期： 2018-09-17 发文机构： 教育部办公厅
发文字号： 教思政厅函〔2018〕33号 信息类别： 其他
内容概述： 教育部办公厅公布首批全国高校“双带头人”教师党支部书记工作室建设名单。

**教育部办公厅关于公布首批
全国高校“双带头人”教师党支部书记
工作室建设名单的通知**

教思政厅函〔2018〕33号

各省、自治区、直辖市党委教育工作部门，新疆生产建设兵团教育局，部属各高等学校、部省合建各高等学校党委：

根据《教育部办公厅关于开展首批高校“双带头人”教师党支部书记工作室建设工作的通知》（教思政厅函〔2018〕19号）安排和评审工作方案，经资格审查、专家通讯评审、教育部党建工作领导小组成员单位集中审议、结果公示，遴选产生100个首批全国高校“双带头人”教师党支部书记工作室（以下简称“双带头人”工作室），现将名单予以公布（见附件1）。“双带头人”工作室建设周期为3年，自2018年9月至2021年8月。有关工作安排和要求如下：

一、认真抓好建设。“双带头人”工作室要围绕教思政厅函〔2018〕19号文件所列建设任务和建设标准，创新工作方法，创建平台载体，创立典型示范，着力发挥党支部战斗堡垒作用和党员先锋模范作用。每年要至少形成1—2项代表性成果。每年7月底前形成年度工作总结和成果报告，3年建设期满提交总结报告及成果汇编，及时提交教育部思想政治工作司。教育部在全国高校思想政治工作网上，为每个工作室搭建网上工作平台（平台登录账号另行通知）。工作室要及时在平台上发布工作进展、典型经验、建设成果，做好建设成效的宣传推广。

二、加强管理考核。坚持过程管理和结果管理相结合，工作室网上平台建设情况、年度工作总结和成果报告、实地督查情况等，都将作为“双带头人”工作室结项验收依据。工作室所在属地党委教育工作部门和高校党委，要加强工作指导，落实必要保障，推广建设成果，加强引领示范，确保建设实效。

三、严格经费管理。建设周期内，教育部按年度划拨工作室专项建设经费。第一期经费统一划拨（划拨方式见附件2），后续根据考核结果视情决定是否继续予以支持。建设经费要严格管理、专款专用，不得用于“双带头人”工作室建设无关的开支。工作室所在高校要严格执行《高校思想政治工作专项资金管理暂行办法》（教财〔2018〕13号）及有关财务管理规定，指导工作室按照“厉行节约、规范高效”的原则合理使用。

四、联系人及联系方式

全国高校思政网：杨璐瑶，010-58582384；西线办时措，010-58581696；网址：
<http://www.sizhengwang.cn/>。

教育部思政司：孙禄，010-66097661；尹龙飞，010-66096689；传真：010-66096560；电子邮箱：
zxc@moe.edu.cn。

邮寄地址：北京市西城区大木仓胡同37号教育部思想政治工作司党建统战处，邮编：100816。

附件：1.首批全国高校“双带头人”教师党支部书记工作室建设名单

2.经费划拨方式说明

教育部办公厅

2018年9月14日

附件 1

首批全国高校“双带头人”教师党支部书记工作室 建设名单

注：排名不分先后

序号	工作室名称
91	西北农林科技大学旱地土壤培肥与高效施肥科研创新团队党支部书记工作室

<https://zhxy.nwsuaf.edu.cn/xyxw/b837dbb475264843b759fcbe7f51304a.htm>

旱地土壤培肥与高效施肥科研创新团队喜获学校首届研究生教育优秀导师团队



搜索关键字

首页 学院概况 师资队伍 学科建设 本科生教育 研究生教育 科研推广 学生工作 党建工作 校友工作

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学院新闻

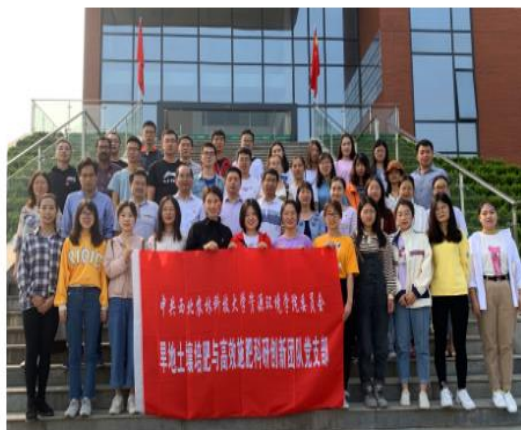
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旱地土壤培肥与高效施肥科研创新团队喜获学校首届研究生教育优秀导师团队

来源：作者：罗一诺 侯赛宾/文 发布日期：2020-12-24 浏览次数：657

经过近两个月的学院推荐、初审、现场展示评选及学校审定等评选环节，12月12日，我校首届研究生教育优秀导师团队和优秀导师评选结果公布。资源环境学院旱地土壤培肥与高效施肥科研创新团队从19个参评团队中脱颖而出，喜获“研究生教育优秀导师团队”称号。



旱地土壤培肥与高效施肥科研创新团队成立于2005年，现有导师成员14人，其中博导7人，硕导7人，指导研究生129人。团队导师和研究生扎根西北，针对西北旱地土壤贫瘠、水资源缺乏，围绕保障粮食安全和生态文明建设的国家与区域发展需求，以“丰产优质、资源高效、土壤培肥、环境友好”为科研目标，通过理论与技术创新，培养优秀人才，支撑西北旱区及我国农业绿色可持续发展。

立德树人、严谨求实，形成了优秀导师团队。团队导师中获教育部新世纪优秀人才2名，农业部农业科研杰出人才1名，国家现代农业产业技术体系岗位科学家2名，农业部科学施肥专家指导组成员1名；团队科研成果先后获省部级科技进步二等奖2项，国家科技进步二等奖1项。近10年来，先后主持承担国家科技支撑计划、国家重点研发计划、国家自然科学基金青年项目、面上项目等项目50余项。2012年农业农村部评为科研创新团队，2016年通过评估再次评为学校五大创新团队之一。团队党支部2014年获陕西首等高等学校先进基层党组织称号，2018年进入教育部全国高校“双带头人”教师党支部书记工作室和“样板党支部”创建序列。团队负责人王朝辉教授2019年被学校评为“我心中的好导师”。

以身作则、率先垂范，培养了一批优秀人才。学生论文发表水平不断提升，博士毕业生中科院一区论文发表率达到100%。团队导师王朝辉、李紫燕、刘金山、郑伟等先后在Advances in Agronomy, Soil Biology and Biochemistry等“双一流”期刊发表论文，近

https://zhxy.nwafu.edu.cn/xyxw/2dc2f9169c2847858c0fe011ca4e994b.htm
旱地土壤培肥与高效施肥科研创新团队党支部获批全国高校党建工作样板支部



西北农林科技大学

NORTHWEST A&F UNIVERSITY

资源环境学院

College of Natural Resources and Environment

搜索关键字

首页学院概况师资队伍学科建设本科生教育研究生教育科研推广学生工作党建工作校友工作

首页

学院新闻旱地土壤培肥与高效施肥科研创新团队党支部获批全国高校党建工作样板支部

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旱地土壤培肥与高效施肥科研创新团队党支部获批全国高校党建工作样板支部

来源：作者：陈婷婷 赵倩茹发布日期：2018-12-23浏览次数：127

12月10日，教育部办公厅公布首批全国党建工作示范高校、标杆院系、样板支部培育创建单位名单，我校资环学院旱地土壤培肥与高效施肥科研创新团队党支部获批全国高校党建工作样板支部。

资环学院旱地土壤培肥与高效施肥科研创新团队党支部于2013年2月成立，初为研究生植物营养学专业第一学术团队党支部，2018年5月重组为旱地土壤培肥与高效施肥科研创新团队党支部，现有党员29名，其中正式党员25名，预备党员4名。包括2名教授、4名副教授、4名讲师、5名博士研究生和14名硕士研究生。团队涉及植物营养学、农业资源利用、环境科学和环境工程4个专业，共有教师和研究生97名，曾荣获省级先进基层党组织荣誉，并多次荣获校级先进党支部，为多学科、跨专业的基层组织，发挥了基层党组织对在科学研究与人才培养的带头作用。

党建工作样板支部建设周期为两年。本次遴选旨在深入贯彻落实习近平新时代中国特色社会主义思想 and 党的十九大精神，按照新时代党的建设总要求，坚持培育为基、重在建设、典型引领、整体推进，以政治建设为统领，以质量攻坚为动力，以提升组织力为重点，以推动事业发展为落脚点，严格对标看齐，勇于改革创新，努力争创先进，为加快一流大学和一流学科建设、实现高等教育内涵式发展、办好人民满意教育提供坚强的组织保证。

强化校企合作，助力化肥减施”——记 2019 年土壤植物营养与 肥料应用技术高级培训班
<https://zhxy.nwsuaf.edu.cn/xyxw/d1df08f2b98f4da684053fd79bddcf3f.htm>



西北农林科技大学

NORTHWEST A&F UNIVERSITY

资源环境学院

College of Natural Resources and Environment

首页学院概况师资队伍学科建设本科生教育研究生教育科研推广学生工作党建工作校友工作

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学院新闻“强化校企合作，助力化肥减施”——记2019年土壤植物营养与 肥料应用技术高级培训班

学院新闻

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合作交流

“强化校企合作，助力化肥减施”——记2019年土壤植物营养与 肥料应用技术高级培训班

来源：作者：文：张达斌/李紫燕 图：南运有/陈玉凯 发布日期：2019-12-18 浏览次数：0

12月3日上午，首届土壤植物营养与肥料应用技术高级培训正式开班，此次培训由西北农林科技大学资源环境学院旱地土壤培肥与高效施肥科研创新团队和新禾丰劲普美农业科技有限公司联合举办，共有来自9个省市区的60余名经销商、种植大户和农技人员参加。开班典礼由西北农林科技大学资源环境学院张达斌博士主持，闫德忠书记作开班致辞，介绍了资源环境学院的产学研相结合、服务社会的优良传统，以及旱地土壤培肥与高效施肥科研创新团队立足西北，围绕“丰产优质、资源高效、土壤培肥、环境友好”通过理论与技术创新，培养优秀人才的突出成效，鼓励学员们好好学习。学院王朝辉教授提出，希望大家认识西农科研精神，争做西农优秀学子。公司总经理李平立感谢西北农林科技大学资源环境学院提供学习交流的平台，表示公司会加强力量，多方位助力校企合作，一起努力为中国农业发展贡献智慧和力量。

全体培训学员合影留念



此次培训持续5天时间，内容丰富、系统、实用，有“土壤学基础知识”、“植物营养基础知识”、“中国水肥一体化进展”、“植物病理防治”、“水溶肥市场现状及发展趋势”、“无人机病害诊断和防控技术”、“小麦品质与施肥技术”、“蔬菜栽培与施肥技术”等16个主题。来自资源环境学院、植物保护学院和园艺学院的13位国内外知名教授、专家为学员们授课，分享各自的研究最新成果和先进农业科技知识。学员们格外珍惜培训机会，认真做好课堂笔记，积极与授课老师互动。

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【资环学院】师生党支部联学联建共商地科专业学生发展

<https://news.nwafu.edu.cn/yxxw/34f388bc49104a44aba6d90b4bfe1ed6.htm>



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【资环学院】师生党支部联学联建共商地科专业学生发展

来源: 资环学院 作者: 薛曾辉 朱陇强 发布日期: 2023-03-21 浏览次数:

为进一步提升我校地理科学系人才培养质量，3月15日，教工地科党支部、研究生土资一党支部、研究生土资二党支部、研究生农资专硕二党支部和本科生地科党支部联合开展“党建引领发展 专业塑造未来”主题研讨会。学院党委副书记田长河、学院副院长任武刚、10名地理科学系教师、5名土地资源与空间信息技术硕博土研究生、6名资源利用与植物保护专业硕士研究生和8名地理信息科学本科生参加研讨会，会议由教工地科党支部书记、地理科学系主任张青峰教授主持。

研讨会上，各年级地科学子分享了自己所处学业阶段中的困惑，并围绕心理健康、课程设置、专业实习、职业规划和高质量期刊目录设置等内容向学院提出建议。地信2022级本科生谈道，个别同学对大学学习生活不够适应，对于《高等数学》等课程缺乏学习方法，学风建设活动应大力开展；地信2021级本科生表示，收到各类科创与比赛通知后比较迷茫，希望开展科创经验交流会；地信2020级本科生建议学院在暑假集中安排专业实习，帮助学生了解地信行业工作实况；地信2019级本科生结合自己的推免经历，建议学院继续加强编程课程重视程度以提高学生专业竞争力；土资学硕研究生针对研一补本课程可选的局限性提出了自己的见解；农资专硕研究生反馈个别实验仪器设备共享不够顺畅，影响相关科研进展；土资博士研究生对于研究生群体因科研压力可能导致的心理健康等问题表达了自己的担心。



学院领导和地科系教师们逐一听取了学生代表们的发言，就大家关心的问题及时予以回应和解答。张青峰表示，大家提出的问题与建议反映了学院地科专业各学历层次人才培养的薄弱环节，感谢同学们推心置腹的发言，地科系后续将开展专题研讨，将大家反馈的问题进行深入分析，采取相关举措提升人才培养质量。

地信2102班方心蕊同学感慨道，通过参加这次研讨会，深刻感受到了老师们真切地为地科专业学科建设和同学们专业素养谋求发展与进步，老师们积极听取同学们的意见，从本科生到硕博土研究生逐层深入了解专业内部情况，讨论间的思维交融碰撞出专业前进的火花，让我对地科专业的未来发展充满期待。

近年来，地科专业师生党支部扎实开展联学联建活动，积极发挥党组织的战斗堡垒作用，结合自身特色，策划了共度政治生日、生态文明专题GIS制图大赛和保研-考研-就业系列经验交流会等活动，接下来将进一步以学生专业发展需求为导向，结合党建工作，探索和深化人才培养模式，加快专业与党建更高质量、更深层次融合。

【党建“双创”示范窗】（41）资环学院本科生地科党支部：党建引领学生专业成才
<https://news.nwafu.edu.cn/xnxw/b4c11cd2b79a47bd94d8674803d5ad64.htm>

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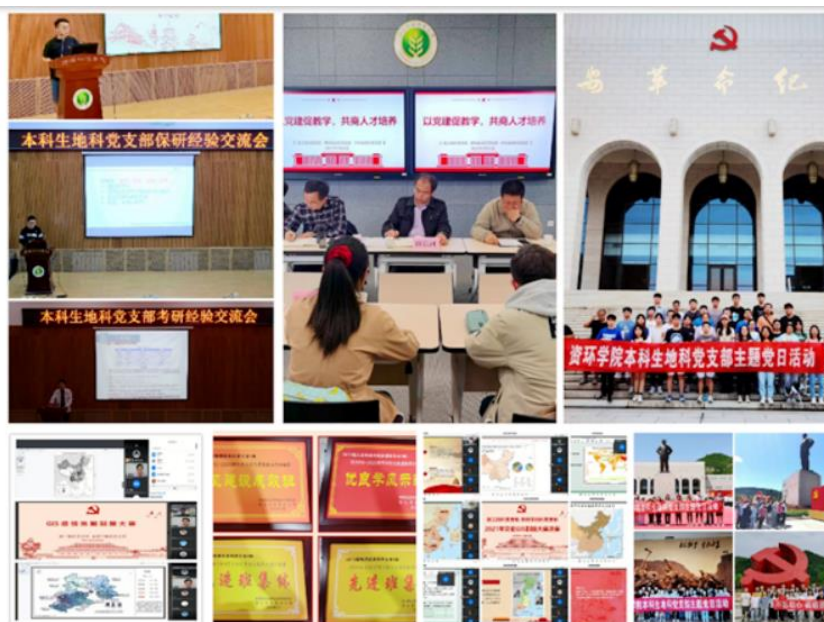
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【党建“双创”示范窗】（41）资环学院本科生地科党支部：党建引领学生专业成才

来源: 资环学院 作者: 薛曾辉 赵倩茹 发布日期: 2023-03-16 浏览次数:

资环学院本科生地科党支部2020年起谋划“党建引领 专业成才”一支部一品牌特色党建工作，突出政治功能，强化专业素养，积极发挥党组织的战斗堡垒作用和党员先锋模范作用，以高质量基层党建助力提升地理信息科学专业人才培养质量。



创新“红色网格 责任育人”工作机制，增强支部合力。以支部实际工作设“宣传报道”“学习强国建设”“综合事务管理”“党建+专业建设”“组织建设”5个党小组，具体细分为“文案影像组”“学习强国功能探索组”“痕迹管理组”“活动策划组”“地理知识组”等14个网格组，实行支部“红色责任网格”管理，安排专人对接地理信息科学专业所有团支部，将党团共建活动常态化。“红色责任网格”实施以来，支部宣传报道在学院网站发布60余篇，在学校新闻网发布10余篇；支部党员“学习强国”APP平均分达15166分，年增长平均分达9100分；严格落实“三会一课”制度，出台《支部会议计划》《支部政治理论学习计划》等制度文件；创建支部专业学习图书角，购置《ArcGIS

空间分析实验教程》等11本与专业相关的图书和音视频等学习资料；策划开展“党建+专业”活动20余次，支部群发布专业相关科研动态150余次；通报支部、党小组和网格组工作进展50余次，监督支委会和网格组党员责任落实。随着党员人数变动，“红色责任网格”实行三年来更新8次，支部的各项工作有序推动，凝聚力大幅提升。

开展“党建引领 专业成才”系列活动，促进学生成才。结合专业特色，策划开展系列品牌活动，推动党建与专业相互融合，多方位促进专业发展。一是党建促学科建设，与教工地科党支部和研究生土资党支部多次开展“以党建促教学 共商人才培养”主题研讨等联学联建活动，地理科学系教师、硕博硕士研究生和本科生在不同角度各抒己见，不断深化学科内涵发展，助力我校地球科学学科在2021年成功进入ESI全球学科排名前1%。二是党建促专业技能，成功举办“疫情”“党史”“生态文明”三届GIS专题制图大赛，作品通过可视化操作详细展示红军长征路线、黄土高原生态质量等专题地图内容，提高了支部成员统计分析、空间分析和地图制图能力。三是党建促学生就业，累计邀请保研至北京大学张怡宁、考研至中国科学技术大学景有鲜、广西选调生曹书凡、出国至英国帝国理工学院王泽宇、广东新禾道公司邓雅云等100余人开展保研升学、考研升学、专业就业、基层就业和出国等5类经验交流会10余场，引导学生树立正确就业观和择业观。四是党建促专业认同，通过茶话会和辩论赛等形式聚焦专业发展前沿问题进行研讨，学生专业认可度稳步提升，近年来地信学生转专业转入转出比连年递增。

形成“支部堡垒 党员旗帜”良好局面，党团协同谋发展。支部的战斗堡垒作用和党员的先锋模范作用发挥明显，地信专业学生提交入党申请书比例超过95%，涌现出2022届本科毕业典礼发言代表申小凡、陕西省高校校园爱心大使王稀权、18级7#509全员升学宿舍、19级11#502全员保研宿舍、地信182班100%就业率、地信19级保研率38.71%创历史新高、1个全省首批高校团建创建样板团支部、1个校级活力团支部、4个校级先进班集体、4个校级优良学风示范班、1个学风建设成效班、2个校级政治理论学习先进团支部、2个校级五四红旗团支部、1次陕西高校基层团支部优秀团日三等奖、1次校级金秋集体合唱三等奖等多个优秀典型个人或集体，支部在学院2021年度党支部考评中评级为“优秀”，获评第三批学校党建工作样板支部。

踔厉奋发新征程，勇毅前行向未来。资环学院本科生地科党支部将继续规范支部各项制度，扎实开展党员教育，坚持党团共建，持续推进“党建引领 专业成才”特色品牌建设，发掘党团共建过程中的优秀典型个人或集体，形成广大学子学做先进、争当先进的浓厚氛围，全面建成战斗堡垒作用发挥明显、辐射带动作用显著的基层党支部。

【学院新闻】开展“GIS 校园行”活动

【学院新闻】开展“GIS校园行”活动

资环新媒体 西农资源环境学院 2023-03-24 22:57 发表于陕西



★ NEWS ★

为进一步深化校企合作，提升学生技能，加深学生对行业认识，共同搭建校企合作育人平台，拓宽毕业生就业渠道，资环学院联合地信行业头部企业——易智瑞信息技术有限公司开展“GIS校园行”活动。

资环学院院长田霄鸿、副院长李志、党委副书记田长河、地理科学系系主任张青峰、学工秘书张浩然，易智瑞公司高级副总裁蔡晓兵，西安分公司事业群总经理郭玮、大客户经理王路、区域市场专员高磊、技术经理薛永杰等出席活动。学院地理信息科学系教师代表、地科系180名学生参与活动。此次活动分为专业交流座谈和特邀讲座两个环节。



座谈会



在专业交流座谈环节，田霄鸿、田长河、张青峰分别从学院发展、毕业生就业现状、学生就业实习情况和学科发展等方面进行介绍。田霄鸿表示，学院将持续凝聚共识，深化产教融合，共同培养应用型高质量人才，促进校企合作结出累累硕果。随后，蔡晓兵从企业规划、战略合作和产品适配等方面介绍了公司发展情况。双方针对共建实验室、低年级学生就业实习和校外企业导师等校企合作内容进行了深入沟通。

在特邀讲座环节，蔡晓兵为学院师生以“GIS连接你和我”为主题开讲。他从公司发展、GIS探索、GIS实践和GIS愿景等方面为师生讲解知识图谱在现实生活中的应用。他讲到：“我们正处于数字化转型的时代，而知识图谱及其应用作为知识管理认知的金字塔正在与地理空间基础设施一起推动数字化转型。我们须不断以新方法、新技术、新模式、新应用驱动转型和发展，要坚持用地理智能帮助我们建设一个可持续发展的未来。”李志表示，本次校企对接不仅帮助学生走出课堂，了解具体实践方法，更为我院地信专业发展提供了更多思路。各位同学应加深对专业发展的认识与思考，坚定未来的道路与目标。



地信2101班杨怡同学感慨道，我们应积极学习专业知识，提升自我本领，为行业蓬勃发展贡献一份力量。将地理科学和GIS技术应用于我们的认识和行动中，利用空间思维与空间方法去发现问题，解决问题。



宣讲会会后合影

陕西省教育厅文件

陕教〔2021〕64号

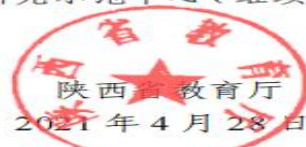
陕西省教育厅关于公布2021年普通高等教育和 高等继续教育省级课程思政示范课程、教学团队、 教学研究示范中心认定结果的通知

各普通高校，有关军队院校：

根据《陕西省委教育工委 陕西省教育厅关于全面推进高等学校课程思政建设工作方案》（陕教工〔2020〕171号）和《陕西省教育厅办公室关于开展课程思政示范项目建设工作的通知》（陕教高办〔2021〕5号）要求，我厅组织开展了2021年省级课程思政示范课程、教学团队、教学研究示范中心认定工作。按照申报条件及认定要求，经形式审查、专家评审、网上公示，认定省级课程思政示范课程182门、教学团队177个、教学研究示范中心18个，现予以公布。

开展高校省级课程思政示范课程、教学团队、教学研究示范中心的认定工作，是全面推进高校课程思政建设、提高课程育人实效、落实立德树人根本任务的具体举措。各高校要切实加强组织领导，紧紧抓住教师队伍“主力军”、课程建设“主战场”、课堂教学“主渠道”，统筹各类资源，强化条件保障，加大对课程思政建设的投入力度，为课程思政建设提供专项经费支持，推动课程思政建设不断取得新成效。同时，要发挥课程思政示范引领和辐射带动作用，持续深入抓典型、树标杆、推经验，将课程思政建设的好经验、好做法适时转化为理论成果，构建全员全程全方位育人新格局，实现我省高等教育内涵式高水平高质量发展。

- 附件：1. 陕西省课程思政示范课程和教学团队名单（本科教育类）
2. 陕西省课程思政示范课程和教学团队名单（继续教育类）
3. 陕西省课程思政示范课程和教学团队名单（研究生教育类）
4. 陕西省课程思政教学研究示范中心（高等教育类）
5. 陕西省课程思政教学研究示范中心（继续教育类）



附件 3

陕西省课程思政示范课程和教学团队名单（研究生教育类）

序号	单位	课程名称	课程负责人	团队其他成员
9	西北农林科技大学	现代地理信息系统技术	张青峰	付金霞、张楚天、晋蓓、王琤、刘京、杨香云

【培养工作】关于公布2021年校级研究生教育教学改革研究项目立项结果的通知

来源： 作者： 发布日期：2021-04-27 浏览次数：1132

研院【2021】1号

各有关单位：

按照《关于申报2021年校级研究生教育教学改革研究项目的通知》，经学校评审，确定“思政元素融入渔业资源生物学课程”等79个项目为校级研究生教育教学改革研究项目（附件1）。

请各项目负责人依据项目合同书要求，认真履行项目工作职责，严格执行经费使用计划，合理支配经费。各有关单位应对项目工作进展及经费使用情况进行监督管理。

联系人：苏美琼 电话：87080150

附件：2021年校级研究生教育教学改革研究项目立项名单

研究生院

2021年4月27日

附件					
2021年校级研究生教育教学改革研究项目立项名单					
序号	项目编号	项目类别	项目名称	负责人	所在单位
22	JXGG2122	课程思政标杆	森林水文学课程思政建设	刘增文	资环学院
23	JXGG2123	课程思政标杆	思政教育融入《土壤退化修复与重建》研究生课程教学的探索	郭学涛	资环学院

通 知

关于 2022 年校级研究生教育教学改革项目 立项的公示

各有关单位:

按照《关于组织申报学校 2022 年研究生教育改革项目的通知》要求,经各单位推荐、专家组评审,2022 年拟立项支持“《中国马克思主义与当代》课程质量提升研究”等 4 个思政必修课建设项目、“《高级植物生理学》课程思政建设”等 45 个课程思政标杆建设项目、“《公司金融》精品示范课程”等 20 个精品示范课建设项目、“混合式教学模式下的《设计概论》核心课程建设”等 38 个新开课程建设项目、《森林灾害防控》等 18 个教材编写项目、“《林业技术推广》课程案例库”等 34 个专业学位研究生课程案例库建设项目、“金融专业基础课投资学 MOOCs 建设”等 6 个线上课程(MOOCs)建设项目。现将拟立项结果予以公示,公示期为 2022 年 4 月 22 日—4 月 25 日。

在公示期间,任何单位或者个人如对立项结果有异议,可通过书面形式实名向研究生院反映。

联系人: 苏美琼

地 址: 南校区研究生院 210 室

电 话: 87080150

邮 箱: pyc@nwafu.edu.cn

附件: 2022 年校级研究生教育教学改革项目立项公示表

研究生院

2022 年 4 月 22 日

附件:				
2022年校级研究生教育教学改革项目立项公示表				
序号	项目类别	项目名称	主持人	所在单位
19	课程思政标杆	生态文明思想融入《土壤退化修复与重建》课程建设的实践与探索	张弛	资源环境学院

关于 2023 年校级研究生教育教学改革项目立项的公示

各有关单位：

按照《关于组织申报学校 2023 年研究生教育改革项目的通知》要求，经各单位评审与推荐、专家组评审与论证，2023 年拟立项支持“风景资源与文化遗产保护”等 30 个课程思政标杆建设项目、“园林植物品种分类学精品示范课程建设”等 30 个精品示范课建设项目、“《有机合成新方法》新形态教材建设”等 13 个教材建设项目、“非遗文创设计推广案例库”等 25 个专业学位课程案例库建设项目、“新农科建设背景下农林高校研究生思政教育实效提升的路径研究”等 20 个教改研究项目。现将拟立项结果予以公示，公示期为 2023 年 5 月 11 日—5 月 15 日。

公示期间如对公示对象有异议，可通过书面形式向研究生院培养处反映。单位反映情况的，请加盖公章；个人提出异议的，请提供姓名、身份证号、联系方式等信息。

联系人：苏美琼

联系电话：87080150

地址：南校区研究生院 210 办公室

附件：2023 年校级研究生教育教学改革项目拟立项名单

研究生院

2023 年 5 月 11 日

附件				
2023年校级研究生教育教学改革项目拟立项名单				
序号	项目类别	项目名称	负责人	所在单位
18	课程思政标杆	基于生态文明理念的《废水处理与利用》课程思政建设	刘鹏	资源环境学院
19	课程思政标杆	“双碳”目标下《环境生态学》课程思政的探索与实践	张京朋	资源环境学院

三、研究生教改项目

（一）省部级以上项目

1.贾汉忠，面向“双一流”研究生教育重点委托项目，碳中和与碳排放人才培养资源建设与模式改革，2022 年，JXGG22202。

2.贾汉忠，全国农业教指委项目，“双碳”目标下资源利用方向专业学位硕士的课程体系优化与建设，2021 年，2021-NYZD-06。

3..王铁成，农工委一般教改课题，导学关系对研究生培养质量的潜在影响，2021 年。

4.王铁成，校级教改项目，五育并举，助力拔尖环保人才成长，2021 年，JXGG2183。

5.蒋锐，全国农业教指委项目，农业硕士研究生培养模式研究，2019 年，2019-NYZD-12。

（二）校级教改项目

1. 2019 年获批校级教改项目重点项目 1 项

2. 2020 年获批校级教改项目 2 项

3. 2021 年获批校级教改项目 6 项

4. 2022 年获批校级教改项目 8 项

5. 2023 年获批校级教改项目 4 项

全国农业专业学位研究生教育指导委员会

农业教指委〔2021〕2号



关于公布全国农业教指委 2021 年立项研究课题的通知

各培养单位:

为促进农业专业学位研究生教育的科学研究和改革发展,全国农业专业学位研究生教育指导委员会(以下简称“教指委”)启动了2021年研究课题申报评审工作。根据评审办法,各培养单位限额推荐共计160项,通过教指委秘书处形式审查有效材料146项。经专项工作专家组评审、教指委委员表决及公示等程序,确定了课题立项名单,共立项课题75项,其中重点课题7项,面上课题68项(详见附件)。项目立项通知书和课题任务书将于近期发送各有关培养单位课题负责人。

附件: 全国农业教指委 2021 年立项研究课题名单

全国农业专业学位研究生教育指导委员会

2021年12月30日

附件:

全国农业教指委 2021 年立项研究课题名单

重点课题7项(排序不分先后)

序号	课题名称	负责人	申请单位	评审结果	课题编号
1	“乡村振兴”与农业硕士专业学位研究生的培养模式研究	汪淳玉	中国农业大学	重点课题	2021-NYZD-01
2	农业硕士“全产业链育人”的培养模式与机制研究	祁春节	华中农业大学	重点课题	2021-NYZD-02
3	牛精英专项硕士研究生培养模式的实践与探索	曹志军	中国农业大学	重点课题	2021-NYZD-03
4	面向东北黑土地保护的农业资源利用领域专业学位研究生产教融合培养基地建设运行模式研究	陈立新	东北林业大学	重点课题	2021-NYZD-04
5	深化产教融合背景下农业专项思想政治教育需求与供给研究	李 琴	中南林业科技大学	重点课题	2021-NYZD-05
6	“双碳”目标下资源利用方向专业学位硕士的课程体系优化与建设	贾汉忠	西北农林科技大学	重点课题	2021-NYZD-06
7	面向实践能力提升的农业信息化工程案例教学研究	张领先	中国农业大学	重点课题	2021-NYZD-07

中国学位与研究生教育学会农林学科工作委员会

农工委〔2021〕4号



关于中国学位与研究生教育学会 农林学科工作委员会 2021 年研究课题立项的通知

各培养单位：

中国学位与研究生教育学会农林学科工作委员会（以下简称“农林工作委员会”）发布 2021 年研究课题立项申报通知后，各会员单位积极组织，期间收到 423 项课题申报。经农林工作委员会有关工作组查重及初审推荐、农林工作委员会 2021 年工作会议线上评审，共有 135 项课题获准立项，其中重点课题 38 项，一般课题 97 项。立项课题名单见附件 1。现将有关事项通知如下：

1. 请各课题负责人接此通知后，尽快确定实施方案，并按照《中国学位与研究生教育学会农林学科工作委员会研究课题管理办法》（附件 2）组织实施。

2. 课题研究时间设定为 2 年，学会将于 2021 年 10 月开展项目中期检查。

3. 请各项目依托单位为课题研究提供必要的人力、物力和经费支持，建议重点课题每项支持 4 万元，一般课题每项支持 2 万元。

联系人：尼姣姣，010-62732630

地 址：北京市海淀区圆明园西路 2 号中国农业大学

附件 1. 学会 2021 年研究课题立项名单

2. 《中国学位与研究生教育学会农林学科工作委员会研究课题管理办法》

中国学位与研究生教育学会
农林学科工作委员会
2021 年 3 月 1 日

附件 1:

农林学科工作委员会 2021 年研究课题立项名单

序号	课题名称	负责人	依托单位	评审结果	项目编号
105	导学关系对研究生培养质量的潜在影响	王铁成	西北农林科技大学 研究生院	一般课题	2021-NLZX-YB67

全国农业专业学位研究生教育指导委员会

农业教指委 [2019] 5 号



关于公布全国农业教指委 2019 年立项研究课题的通知

各培养单位：

为促进农业专业学位研究生教育的科学研究和改革发展，全国农业专业学位研究生教育指导委员会（以下简称“全国农业教指委”）启动了2019年研究课题申报评审工作。经各培养单位组织申报，全国农业教指委专门工作委员会专家初审、质量与监督检查专门工作委员会专家会议评审、表决、公示等程序，确定了课题立项名单，共立项课题98项，其中重点课题25项，一般课题73项（根据专家意见，全国农业教指委秘书处对部分课题名称做了修改）。详见附件。

附件：全国农业教指委 2019 年立项研究课题名单

全国农业专业学位研究生教育指导委员会

2019 年 11 月 4 日

附件：

全国农业教指委 2019 年立项研究课题名单

重点课题 25 项（排序不分先后）

序号	课题名称	负责人	申请单位	评审结果	项目编号
12	农业硕士研究生培养模式研究	蒋 锐	西北农林科技大学	重点课题	2019-NYZD-12

通 知

关于 2019 年校级研究生教育教学改革研究项目评审结果及立项的公示

各有关学院（系、所）：

根据《关于申报 2019 年校级研究生教育教学改革研究项目的通知》精神，经各单位评议推荐，学校专家组评审，“《动物胚胎学与胚胎工程》教材编写与课程体系建设”等 41 个项目通过评审拟立项。现将评审结果予以公示，公示期为 2019 年 7 月 4 日—7 月 8 日。

在公示期间，任何单位或者个人如对评审结果有异议，均可通过来信、来电和来访等形式向研究生院培养处反映。

联系人：苏美琼

电话：87080150

电子邮件：pyc@nwafu.edu.cn

附件：2019 年校级研究生教育教学改革研究项目评审结果公示表

附件：				
2019年校级研究生教育教学改革研究项目评审结果公示表				
序号	所在单位	项目名称	申报人	立项级别
4	资环学院	以高层次应用人才培养为目标的农业硕士专业学位研究生培养模式研究	蒋锐	重点

通 知

关于 2020 年校级研究生教育教学改革 研究项目立项的公示

各学院（系、所）：

按照《关于申报 2020 年校级研究生教育教学改革研究项目的通知》要求，经各单位推荐、专家组评审、研究生院院长会议审议，2020 年拟立项支持“《投资学》优质课程及网络教学资源建设”等 24 个优质课程建设项目、“畜牧学专业学位研究生《特种动物资源与养殖技术》课程案例库建设”等 8 个课程案例库建设项目、“《植物病原物抗药性》研究生课程教材建设”等 4 个教材建设项目、“以基地为依托的果酒产业高端复合型人才培养模式探索与实践”等 40 个教改研究项目。现将拟立项结果予以公示（见附件），公示期为 2020 年 5 月 29 日—6 月 2 日。

在公示期间，任何单位或者个人如对立项结果有异议，均可通过来信、来电和来访等形式向研究生院反映。

联系人：苏美琼

电 话：87080150

电子邮件：pyc@nwafu.edu.cn

附件: 2020 年校级研究生教育教学改革研究项目立项公示表

研究生院
2020 年 5 月 29 日

附件:				
2020年校级研究生教育教学改革研究项目立项公示表				
序号	项目类别	项目名称	主持人	所在单位
13	优质课程	《土壤物理学》中、英文课程建设	张建国	资环学院
17	优质课程	《环境污染化学》优质课程建设	黄懿梅	资环学院

【培养工作】关于公布2021年校级研究生教育教学改革研究项目立项结果的通知

来源: 作者: 发布日期: 2021-04-27 浏览次数: 1132

研院【2021】1号

各有关单位:

按照《关于申报2021年校级研究生教育教学改革研究项目的通知》, 经学校评审, 确定“思政元素融入渔业资源生物学课程”等79个项目为校级研究生教育教学改革研究项目(附件1)。

请各项目负责人依据项目合同书要求, 认真履行项目工作职责, 严格执行经费使用计划, 合理支配经费。各有关单位应对项目工作进展及经费使用情况进行监督管理。

联系人: 苏美琼 电话: 87080150

附件: 2021年校级研究生教育教学改革研究项目立项名单

研究生院
2021年4月27日

附件					
2021年校级研究生教育教学改革研究项目立项名单					
序号	项目编号	项目类别	项目名称	负责人	所在单位
22	JXGG2122	课程思政标杆	森林水文学课程思政建设	刘增文	资环学院
23	JXGG2123	课程思政标杆	思政教育融入《土壤退化修复与重建》研究生课程教学的探索	郭学涛	资环学院
60	JXGG2160	教材建设	《土壤污染与修复》	孟昭福	资环学院
61	JXGG2161	教材建设	《土地退化修复与重建》教材建设	贾汉忠	资环学院
62	JXGG2162	教材建设	《环境科学研究方法》	王铁成	资环学院
79	JXGG2179	课程案例库	农业信息技术	张青峰	资环学院

部门概况 党建工作 招生工作 培养工作 学位工作 质量评估与监督 思政工作 奖励学金 制度与流程 国际合作 交流园地

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招生

培养

学位管理

质量评估与监督

日常管理

研工工作

【培养工作】关于2021年第二期校级研究生教改项目立项的公示

来源： 作者： 发布日期：2021-09-06 浏览次数：868

各学院（所）：

经各单位推荐、专家组评审，2021年第二期研究生教改项目拟立项支持“我校研究生体育课教学模式的探索与创新研究”等8个教改研究项目、“《营养表观遗传学》双语示范课程建设”等5个精品示范课程建设项目、“《果酒工艺学》研究生教材建设”等2个教材建设项目、“食品工程硕士《高级食品化学》课程案例库建设实践”等2个课程案例库建设项目。现将拟立项项目予以公示，公示期为2021年9月6日—9月8日。

在公示期间，任何单位或者个人如对立项结果有异议，均可通过来信、来电和来访等形式向研究生院反映。

联系人：苏美琼

电话：87080150

电子邮件：pyc@nwfau.edu.cn

附件：2021年第二期校级研究生教改项目立项公示表

研究生院

2021年9月6日

附件：

2021年第二期校级研究生教改项目立项公示表

序号	所在单位	项目名称	支持人	项目类型
2	资环学院	五育并举，助力拔尖环保人才成长	王铁成	教改研究类
10	资环学院	环境科学与工程进展	李志	精品示范课程

通 知

关于 2022 年校级研究生教育教学改革项目 立项的公示

各有关单位:

按照《关于组织申报学校 2022 年研究生教育改革项目的通知》要求,经各单位推荐、专家组评审,2022 年拟立项支持“《中国马克思主义与当代》课程质量提升研究”等 4 个思政必修课建设项目、“《高级植物生理学》课程思政建设”等 45 个课程思政标杆建设项目、“《公司金融》精品示范课程”等 20 个精品示范课建设项目、“混合式教学模式下的《设计概论》核心课程建设”等 38 个新开课程建设项目、《森林灾害防控》等 18 个教材编写项目、“《林业技术推广》课程案例库”等 34 个专业学位研究生课程案例库建设项目、“金融专业基础课投资学 MOOCs 建设”等 6 个线上课程(MOOCs)建设项目。现将拟立项结果予以公示,公示期为 2022 年 4 月 22 日—4 月 25 日。

在公示期间,任何单位或者个人如对立项结果有异议,可通过书面形式实名向研究生院反映。

联系人: 苏美琼

地 址: 南校区研究生院 210 室

电 话: 87080150

邮 箱: pyc@nwafu.edu.cn

附件: 2022 年校级研究生教育教学改革项目立项公示表

研究生院

2022 年 4 月 22 日

附件:				
2022年校级研究生教育教学改革项目立项公示表				
序号	项目类别	项目名称	主持人	所在单位
19	课程思政标杆	生态文明思想融入《土壤退化修复与重建》课程建设的实践与探索	张弛	资源环境学院
51	精品示范课程	农林专业特色《微生物研究法》课程建设	韦小敏	资源环境学院
93	新开课	《碳中和理论与技术》课程建设	王效琴	资源环境学院
110	教材编写	《现代地理信息系统技术》	张青峰	资源环境学院
115	教材编写	《农业碳中和概论》	刘梦云	资源环境学院
133	专业学位案例库	跨越时空的缩影-基于复位摄影技术探索城市生态和冰川变化	何海龙	资源环境学院
139	专业学位案例库	高级氧化技术在典型难降解有机废水处理中的应用案例	屈广周	资源环境学院
140	专业学位案例库	乡村振兴背景下资源与环境专业硕士工程案例库建设	王权	资源环境学院

关于 2023 年校级研究生教育教学改革 项目立项的公示

各有关单位：

按照《关于组织申报学校 2023 年研究生教育改革项目的通知》要求，经各单位评审与推荐、专家组评审与论证，2023 年拟立项支持“风景资源与文化遗产保护”等 30 个课程思政标杆建设项目、“园林植物品种分类学精品示范课程建设”等 30 个精品示范课建设项目、“《有机合成新方法》新形态教材建设”等 13 个教材建设项目、“非遗文创设计推广案例库”等 25 个专业学位课程案例库建设项目、“新农科建设背景下农林高校研究生思政教育实效提升的路径研究”等 20 个教改研究项目。现将拟立项结果予以公示，公示期为 2023 年 5 月 11 日—5 月 15 日。

公示期间如对公示对象有异议，可通过书面形式向研究生院培养处反映。单位反映情况的，请加盖公章；个人提出异议的，需提供姓名、身份证号、联系方式等信息。

联系人：苏美琼

联系电话：87080150

地 址：南校区研究生院 210 办公室

附件：2023 年校级研究生教育教学改革项目拟立项名单

研究生院
2023 年 5 月 11 日

附件				
2023年校级研究生教育教学改革项目拟立项名单				
序号	项目类别	项目名称	负责人	所在单位
18	课程思政标杆	基于生态文明理念的《废水处理与利用》课程思政建设	刘鹏	资源环境学院
19	课程思政标杆	“双碳”目标下《环境生态学》课程思政的探索与实践	张京朋	资源环境学院
90	专业学位课程案例库	OBE模式下《科研伦理与规范》课程案例库建设	欧阳卓智	资源环境学院
111	教改研究	基于产业需求驱动的项目制研究生多学科交叉培养路径研究	何刚	资源环境学院

四、研究生学术活动新闻报道

（一）举办国际会议

- 1.2012 年第三届农业土壤固碳减排与气候变化国际学术研讨会
- 2.2014 年第四届“农业土壤固碳与气候变化”国际学术研讨会
- 3.2019 年国际硒研究大会
- 4.2021 丝绸之路国际产学研用合作会议-高原生态环保与黄河流域高质量发展国际产学研用研讨会—农业生态环境保护与高质量发展分论坛
- 5.2022 年第二届“土壤-环境-作物-肥料”国际论坛
- 6.2022 年“农业生态环境保护与高质量发展”国际分论坛
- 7.2022 年“农田固碳与地力提升”国际分论坛
- 8.2023 年第三届可持续固体废物处理与管理国际会议

（二）国内学术会议

- 1.2013 年中国农业适应气候变化关键技术研讨会
- 2.2015 年“养分资源高效利用与农业环境保护”学术研讨会
- 3.2016 年 2016 杨凌国际农业科技论坛第三分论坛
- 4.2018 杨凌国际农业科技论坛第三分论坛
- 5.2018 年第二届农业资源与环境论坛“农业资源高效利用与绿色发展”研讨会
- 6.2019 年第六届“蓝藻水华论坛”
- 7.2021 年资源环境领域青年学术论坛
- 8.2021 年第十九届持久性有机污染物环境过程与健康高层论坛
- 9.2021 第八届国际青年学者论坛资环分论坛
- 10.2023 年“土壤与环境科学”主题系列学术报告会

（三）研究生学术沙龙

- 1.夏季学期第一期研究生学术沙龙成功举办
- 2.第二期研究生学术沙龙成功举办
- 3.以“植被生态遥感监测”为主题的第三期研究生学术沙龙成功举办
- 4.第四期研究生学术沙龙成功举办
- 5.第五期研究生学术沙龙圆满结束

（一） 国际会议

1.我校参与主办的“第三届农业土壤固碳减排与气候变化国际学术研讨会”顺利召开

<https://zhxy.nwsuaf.edu.cn/xyxw/69973.htm>



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资源环境学院
College of Natural Resources and Environment

搜索关键字

首页学院概况师资队伍学科建设本科生教育研究生教育科研推广学生工作党建工作校友工作

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首页 » 学院新闻 » 我校参与主办的“第三届农业土壤固碳减排与气候变化国际学术研讨会”顺利召开

来源：作者：董晓建发布日期：2012-08-19浏览次数：0

由中国植物营养与肥料学会、中国农业科学院、中国农业大学及我校联合主办，中国农业科学院农业资源与农业区划研究所承办的“第三届农业土壤固碳减排与气候变化国际学术研讨会”于2012年7月21日-24日在北京隆重召开。会议开幕式由中国农业科学院农业资源与农业区划研究所副所长徐明岗研究员主持，中国农业科学院国际合作局副局长杨峰、中国植物营养与肥料学会理事长金继运研究员出席大会开幕式并讲话。来自美国、英国、澳大利亚、日本、韩国、土耳其、巴基斯坦以及国内相关大学及研究所的160余名专家学者参加了会议。

会议期间，30余名专家学者做了大会报告，内容涉及肥料长期定位试验与土壤有机碳循环、土壤碳氮相互作用、土壤无机碳变化及其在全球陆地碳循环中的作用、陆地生态系统碳氮循环的模型模拟等方面。资源环境学院院副建斌教授主持了大会主题报告，周建斌教授及水保所郭胜利研究员还分别做了土壤碳氮转化及调控的大会报告。会议还邀请美国俄亥俄州立大学沃伦·迪克教授、杜克大学丹尼尔·里克特教授、美国加利福尼亚大学戴维斯分校的威廉·诺华教授以及澳大利亚新南威尔士州的刘德利博士就长期定位试验管理、长期试验设计的原则、同位素在土壤碳氮循环研究中的应用、土壤有机碳模型验证及区域化应用等进行了专题培训。会议期间，与会代表就农田系统碳氮循环与转化过程、温室气体减排、碳氮循环模型应用与验证、干旱地区无机碳固定等当前的科研热点问题，展开了非常热烈的讨论和交流。

这次会议的召开，为国内外从事农业土壤固碳减排与气候变化的学者及研究生提供了交流机会，对推动我国农业土壤固碳减排和气候变化领域的国际合作与交流，以及促进我国农田养分高效利用和地力提升、农田系统固碳减排、保证粮食安全和减缓气候变化具有积极意义。

2.第四届“农业土壤固碳与气候变化”国际学术研讨会

<https://zhxy.nwsuaf.edu.cn/xyxw/69621.htm>



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搜索关键字

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首页 » 学院新闻 » 五国专家研讨农业土壤固碳与气候变化

来源：作者：靳军 刘占军/文 丁尚鹏 靳军/图发布日期：2014-09-24浏览次数：0

9月21-24日，第四届“农业土壤固碳与气候变化”国际学术研讨会在我校国际交流中心举行，来自美国、英国、澳大利亚、德国及中国高校及科研单位100余位专家学者和企业代表参会。

本届国际学术研讨会由西北农林科技大学、中国农业科学院、中国植物营养与肥料学会主办，西北农林科技大学资源环境学院、农业部西北植物营养与农业环境重点实验室及中英可持续农业创新协作网联合承办，旨在推进我国农业土壤固碳与气候变化领域的研究，促进我国西部地区及全国土壤碳循环与农田可持续发展。研讨会开幕式由资源环境学院教授、农业部西北植物营养与农业环境重点实验室主任周建斌主持，西北农林科技大学副校长罗军、陕西省科学技术协会学术部副部长张晓晓、中国农业科学院农业资源与区划研究所副所长徐明岗先后致辞。

应大会邀请，美国加州大学戴维斯分校William Horwath教授、美国俄亥俄州立大学Warren Dick教授、美国路易安那州立大学Jim J Wang教授、英国苏格兰学院Rob Rees教授、德国哥廷根大学Anna Gunina和Yakov Kuzakov教授、澳大利亚悉尼大学Brajesh Singh教授、澳大利亚西澳大学Daniel Murphy和France Hoyle教授、中国农科院徐明岗研究员、中国农业大学张锡钧教授、浙江大学徐建民教授、中科院南京土壤研究所谢祖彬研究员、中科院沈阳应用生态研究所张旭东研究员等作了“温室气体释放的土壤生物学过程与调控机制”、“碳与粮食安全和全球气候变化”以及农田管理措施缓解土壤碳释放调控机制的主题报告。会议围绕“土壤生态系统温室气体释放与减排”、“长期定位试验与土壤碳库转化”、“人为土及固碳作用”、“养分管理土壤固碳”和“新仪器及方法在土壤固碳转化中的应用”五个方面的内容共作报告36场，与会代表进行了多角度、深层次的探讨和交流。会议还设有35篇论文墙报，详尽展示了就与农业领域近年来的最新进展与成果。

会议期间，中外代表还参观了西北农林科技大学杨凌试验站，了解学校在西北黄土高原固碳研究方面所作出的成绩和贡献。



3.国际硒研究大会在我校开幕 规模为历届之最
https://zhxy.nwsuaf.edu.cn/xyxw/b73181e968f34301ae32d468eeb8df85.htm

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国际硒研究大会在我校开幕 规模为历届之最

来源：作者：靳军发布日期：2019-10-30浏览次数：327



第六届环境中硒与人体健康国际会议开幕

10月28日，第六届环境中硒与人体健康国际会议在我校开幕，来自中、美、英、德等20个国家的专家学者、企业代表等200余人，围绕硒的多面性及其对环境 and 生物系统的交互影响这一主题展开深入研讨和交流。

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4.2021 丝绸之路国际产学研用合作会议 高原生态环保与黄河流域高质量发展国际产学研用研讨会—农业生态环境保护与高质量发展分论坛 在我校举行

<https://zhxy.nwsuaf.edu.cn/xyxw/7faff88a75324e94b80f2e4f8b0b6435.htm>



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首页 学院概况 师资队伍 学科建设 本科生教育 研究生教育 科研推广 学生工作 党建工作 校友工作

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2021丝绸之路国际产学研用合作会议 高原生态环保与黄河流域高质量发展国际产学研用研讨会—农业生态环境保护与高质量发展分论坛 在我校举行

来源： 作者：吴小平 黄冬琳 钱勤 发布日期：2021-11-02 浏览次数：0

2021丝绸之路国际产学研用合作会议 高原生态环保与黄河流域高质量发展国际产学研用研讨会—农业生态环境保护与高质量发展分论坛于10月30日在我校召开。来自中国、巴西、美国、塞尔维亚、巴基斯坦、瑞典、荷兰等国家的专家学者、研究生通过线上、线下形式参会，共同探讨土壤碳循环，农业固体废物资源化，农业生态环境管理等方面的最新研究成果。



西北农林科技大学校长吴普特教授、陕西省教育厅副厅长刘保平、乌克兰国立生物资源与自然资源合理利用大学副校长 Tkachuk Vadym 教授、中外联合导师代表美国科学院院士 James M. Tiedje 教授、中国政府友谊奖获得者澳大利亚技术科学与工程院院士 Kadambot Siddique 教授等通过视频分别在开幕式上致辞。

5.第二届“土壤-环境-作物-肥料”国际论坛成功举办

<https://zhxy.nwsuaf.edu.cn/xyxw/83beca32944745c7a585a18a01e92f2d.htm>



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第二届“土壤-环境-作物-肥料”国际论坛成功举办

来源：作者：王子琳 石磊/文 王梓琦 王淑基/图 发布日期：2022-12-18 浏览次数：943

由西北农林科技大学、南京农业大学和华中农业大学共同主办，以“绿色农业与人体健康”为主题的第二届“土壤-环境-作物-肥料”国际论坛于2022年12月15日-16日在线成功举办。

大会开幕式由我院王朝辉教授主持，罗军副校长出席会议并致欢迎辞，科研院副院长孙楠、学院党委书记闫德忠、院长田青鹤以及副院长李志列席参会。



本次论坛由大会报告和研究生专场两部分组成。来自澳大利亚技术科学与工程院士Kadambot Siddique、德国哥廷根大学的Yakov Kuzyakov教授、南澳大利亚研究与发展研究所Victor O. Sadras教授、瑞士联邦水科学与技术研究所(EAWAG)环境微生物学系教授David R. Johnson、西贡大学农业与环境学院及农业研究所Yinglong Chen教授、中国科学院南京土壤研究所施卫明研究员、华中农业大学石磊教授、湖南农业大学张振华教授、南京农业大学韦中教授、德国慕尼黑工业大学/华中农业大学博士后刘昭军、山西农业大学黄晓磊副教授，以及西北农林科技大学刘坤祥教授、王存教授、田汇副教授、石美副教授和张达斌副教授等16名国内外专家及青年学者进行了汇报交流。研究生专场由相关领域的17位研究生进行学术交流。

6.“农业生态环境保护与高质量发展”国际分论坛成功举办

<https://zhxy.nwsuaf.edu.cn/xyxw/e2e8ddc15a9445cf921b9097825533ae.htm>

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“农业生态环境保护与高质量发展”国际分论坛成功举办

来源：科研推广办公室 作者：赵杰 发布日期：2022-11-07 浏览次数：354

由教育部学校规划建设发展中心主办，陕西省教育厅、西北农林科技大学、西安理工大学承办的2022丝绸之路高原生态环保与黄河流域高质量发展国际产学研用合作研讨会分论坛“农业生态环境保护与高质量发展”于11月5日在资源环境学院学院报告厅成功举办。本次会议邀请来自海外不同国家的15位专家线上参与报告和交流，线上线下师生约百余人参加会议。会议开幕式由副院长王健主持并致开幕词。



7.“农田固碳与地力提升”国际分论坛成功举办

<https://zhxy.nwsuaf.edu.cn/xyxw/e5c7f290e398495d8b20e64dcd201d15.htm>



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“农田固碳与地力提升”国际分论坛成功举办

来源：科研推广办公室 作者：吴小平 赵杰 发布日期：2022-09-20 浏览次数：789

为了分享各国农业低碳绿色发展的理论、科技和政策经验，探索共同发展路径，由科技部和陕西省人民政府主办，西北农林科技大学、陕西省科学技术厅、杨凌示范区管委会承办，资源环境学院承担的第十六届杨凌国际农业科技论坛分议题“农田固碳与地力提升”于9月16日在学院报告厅举办。本次会议邀请来自海外不同国家的18位专家线上参与报告和交流，线下师生约150人参加会议。会议由副院长李志主持。



学院院长田霄鸿致开幕词，对应邀参会的各国专家表示热烈的欢迎。随后介绍了学院的人才培养体系，近年来在学科发展、人才培养，科研成果产出、服务社会以及国际交流和合作办学方面取得的丰硕成果。希望通过本次论坛增进互融互通、探究学术前沿、推动学术创新与交流合作，展望未来发展，共同为全球生态健康和农业可持续发展出谋划策。

<https://zhxy.nwafu.edu.cn/xyxw/64b5f7495cd3414d965aeb03c9f6ee98.htm>


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■ 合作交流

来源: 作者:王萍、孙西宁、任秀娜 发布日期:2023-07-31 浏览次数:724

本次大会会有来自美国、加拿大、巴西、印度、瑞典、马来西亚、荷兰、澳大利亚和中国台湾和香港的境外专家30余位，国内来自中国科学院、中国环境科学研究院、中国农业科学研究所及清华大学、哈尔滨工业大学、同济大学、复旦大学、中国农业大学、华中师范大学、上海交通大学、北京科技大学、南方科技大学等国内知名专家代表260余位。会议得到我校资源环境学院大力支持。本次会议围绕固体废物处理与资源化利用的前沿技术领域，共设置了16个分会场、113个学术报告、42个墙报。与会专家学者就固体废物处理与资源化管理方面的新理论、新技术、新模式以及新产品等最新研究成果进行了广泛深入的交流。会议主旨是在围绕可持续发展战略、协同推进固体废物处理与资源化利用，助力人与自然和谐共生现代化的建设，切实交两山理论。



副校长罗军在开幕式上致辞



张增强教授在开幕式上致辞

（二）国内学术会议

1. 中国农业适应气候变化关键技术研讨会在我校召开

<https://zhxy.nwsuaf.edu.cn/xyxw/69688.htm>



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中国农业适应气候变化关键技术研讨会在我校召开

来源：作者：韩仲宇 林文发布日期：2013-05-13浏览次数：138

5月10日，“中国农业适应气候变化关键技术研讨会”在我校国际交流中心召开，吴普特副校长出席开幕式并致辞。参加此次会议的专家有来自中国农科院、中国农业大学、国家气象局及气象出版社、中国热带作物研究院及其他科研单位专家。吴普特副校长在开幕式上致辞，并向与会各位专家介绍了我校的校史及发展概况。

来自中国农科院作物所，我国著名作物遗传育种专家贾继增研究员在会上作了题为《从小麦D基因组结构看小麦的抗逆性》的报告，资源环境学院同延安教授介绍了世界银行贷款中国贫困地区可持续发展项目“陕西贫困地区农业应对气候变化”进展情况，我校人文学院中国农业历史文化研究所所长樊志民研究员作了题为《黄河农耕文明》的报告。会议还对2013年相关工作的内容进行了深入的讨论和总结，为下一步工作的展开奠定了基础。



2.“养分资源高效利用与农业环境保护”学术研讨会在我校召开

<https://zhxy.nwsuaf.edu.cn/xyxw/69519.htm>



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“养分资源高效利用与农业环境保护”学术研讨会在我校召开

来源：作者：田慧/文 姚志远 李玉平 /图 发布日期：2015-06-02 浏览次数：0

2015年5月30日，由我校资源环境学院、农业部西北植物营养与农业环境重点实验室组织的主题为“养分资源高效利用与农业环境保护”的学术研讨会在我校国际交流中心208会议室召开。

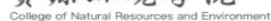
我校资源环境学院学术院长、中国农业大学资源与环境学院张福锁教授、中国农业科学院张维理研究员、自由路研究员、中国农业科学院农业环境与可持续发展研究所曾希柏研究员、中科院南京土壤研究所施卫明研究员，以及来自甘肃省农科院、中科院新疆生态与地理研究所、青海大学等14个单位的20多名专家参加会议，我院相关专业教师及研究生150余人参加了会议。

各位参会专家代表围绕会议主题从我国化肥施用现状及存在的问题、化肥零增长策略、西北旱地水肥高效利用、西北地区循环农业发展现状、土壤污染与修复等多个方面阐述了我国西北地区养分资源高效利用和农业环境保护方面的研究进展、存在的问题以及未来的重点研究方向。农业部西北植物营养与农业环境重点实验室主任周建斌教授汇报了重点实验室自成立以来取得的成绩、建设进展以及下一步的发展目标，强调需进一步发挥重点实验室在国家、特别是西北地区养分资源高效利用与农业环境保护方面的作用。

我校资源环境学院院长吕家珑教授、副院长高亚军教授、田雪涛教授、周建斌教授，青年教师以及研究生也参加了会议。



<https://zhxy.nwsuaf.edu.cn/xyxw/325596.htm>



搜索关键字

校友工作

[首页](#) [学院新闻](#) [2016杨凌国际农业科技论坛第三分论坛圆满召开](#)

● 合作交流

来源: 作者: 李平 赵倩茹/文 李玉平 郭璋/图 发布日期: 2016-11-08 浏览次数: 175



会议现场

农业部重点实验室主任周建超教授在开幕式上致辞,对各位专家学者的到来表示热烈欢迎。此次论坛主要围绕世界范围土壤固碳与化肥农药协同利用进行交流,着重在土壤可持久发展和环境气候两方面重点问题展开研讨。德国莱布尼兹工业生态学所Karl-Heinz Wimmer教授、美国新墨西哥州立大学Manoj K SHUKLA教授、美国密西沙加大学Timothy FILLEY教授、美国堪萨斯州立大学林树学中心Liang Wang教授、北京师范大学王亮亮教授、西南大学陈华军教授、中国农业大学农业环境科学与农业工程学研究所周卫教授、中国科学院南京土壤研究所陈卫根教授、武汉大学杜松林教授、王明耀教授、郭利群教授、佟小刚副教授、张达斌博士、李彬彬博士分别作了大会报告。我院副院长田晋海教授在闭幕式上对各位专家学者和师生们的参会表示感谢,希望通过此次论坛,促进各国之间不断提高合作层次,提高我国科技水平,为降低农业碳排放做出新贡献。



4.2018 杨凌国际农业科技论坛第三分论坛圆满召开

<https://zhxy.nwsuaf.edu.cn/xyxw/405514.htm>



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2018杨凌国际农业科技论坛第三分论坛圆满召开

2018杨凌国际农业科技论坛第三分论坛圆满召开

来源：作者：陈婷婷 李平/文 孙宏达 高旭/图 发布日期：2018-11-12 浏览次数：198

11月6日，由资源环境学院及农业西北植物营养与农业环境重点实验室共同承办的以“农业高效资源利用与绿色发展”为主题的2018杨凌国际农业科技论坛第三分论坛在资源环境学院学术报告厅顺利举行。来自阿根廷、墨西哥、印度、澳大利亚、美国以及国内等高校和科研机构的10位专家及我校相关专业专家教授、青年教师、研究生等200余人参加了会议，会议由学院副院长李志主持。



资源环境学院院长王旭东在开幕式上致辞，对各位专家学者的到来表示热烈欢迎。此次论坛主要围绕农业资源高效利用与绿色发展这一主题进行交流，报告内容涉及了从生物基生物聚合物合成智能材料、新兴污染物的监测与修复长期施肥对土壤硝化和反硝化以及微生物群落和丰度的影响、印度生物基管理的技术挑战以及造纸业污水处理的生物修复策略、硫酸盐在中国北方农田土壤中的固碳作用、秸秆还田配合外源物料添加降低石灰性土壤CO₂排放量和增强碳固持的机制、美国东部种植业对气候变化的响应和适应等。阿根廷拉普拉塔国立大学Guillermo R. Castro教授、浙江大学梁永超教授、印度国家环境工程研究所Sunil Kumar研究员、墨西哥科阿韦拉自治大学Cristóbal Noé AGUILAR教授、印度国家环境毒理学研究所Abhay raj研究员、澳大利亚沃加沃加农业研究所刘德立研究员、北京师范大学王秀君教授、美国马里兰大学Robert Hill 教授、澳大利亚纽卡斯尔大学全球环境修复中心方程研究员、中国农业大学李隆教授、我校周建斌教授、张增强教授、田晋涛教授、分别作了大会报告。资源环境学院周建斌教授在闭幕式上对各位专家学者和师生们的参会表示感谢，并表示本次论坛促进了大家之间的交流，给大家互相了解的机会，希望以此为起点，在未来的日子里继续加强合作。



<https://zhxy.nwsuaf.edu.cn/xyxw/407418.htm>



摘要关键词

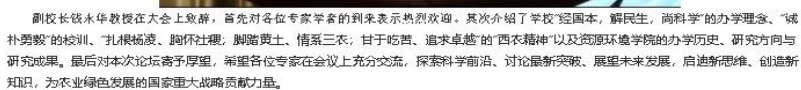
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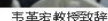
合作交流

来源: 作者: 陈婷婷 李平 发布日期: 2018-11-28 浏览次数: 416

本届研讨会以“农业科技創新与农业绿色发展”为主题，大会开幕式由资源环境学院院长吕崇龙主持，学校钱永华副校长、农业农村部环境保护科研监测所刘荣乐所长出席会议并致辞。



<https://zhxy.nwsuaf.edu.cn/xyxw/428696.htm>



7.资源环境领域青年学术论坛成功举办

<https://zhxy.nwsuaf.edu.cn/xyxw/37a79934f47a446bb4ffaa3399474b4f.htm>



西北农林科技大学

NORTHWEST A&F UNIVERSITY

资源环境学院

College of Natural Resources and Environment

搜索关键字

首页学院概况师资队伍学科建设本科生教育研究生教育科研推广学生工作党建工作校友工作

学院新闻通知公告合作交流

资源环境领域青年学术论坛成功举办

来源：科研推广办公室 作者：吴小平、赵杰、尉能能 发布日期：2021-09-28 浏览次数：796

9月27日，资源环境领域青年学术论坛在资源环境学院报告厅成功举办，本次论坛邀请了国内9所院校的10余位青年人才开展学术交流。学院院长田青鸿、副院长李志等参加论坛，线上线下500余名师生参会。



田青鸿致开幕词，对应邀参加本次论坛的专家表示热烈欢迎，并向与会人员介绍了学院概况，及近几年学院在人才培养，学科建设、项目申报等方面取得的成绩，本次学术会议由李志主持。

本次论坛由西北农林科技大学资源环境学院、农业农村部西北植物营养与农业环境重点实验室、农业农村部烟台农业环境与耕地保育科学观测实验站、国家土壤质量长期观测实验站主办，论坛主题为“养分循环与土壤健康”，围绕这一主题共进行4个半场的学术交流和讨论。

<https://zhxy.nwsuaf.edu.cn/xyxw/8c89a7697ed140009a816c2ddcbc4d81.htm>

摘要关键词

A photograph showing two men standing behind a dark wooden podium on a stage. The man on the left is wearing a dark jacket and is looking towards the camera. The man on the right is wearing a dark jacket over a light blue shirt and glasses, and is smiling while looking towards the right. A microphone is positioned in front of the man on the left. The background is a bright blue screen with large white Chinese characters, including '第十九' (19th) and '论坛' (Forum).

<https://zhxy.nwsuaf.edu.cn/xyxw/83b0f8eac5924e50a65fddbfb312d3ba.htm>



10.“土壤与环境科学”主题系列学术报告会顺利举办
https://zhxy.nwafu.edu.cn/xyxw/6cee4eb75942208f8292f7dce69427.htm

西北农林科技大学

NORTHWEST A&F UNIVERSITY

资源环境学院

College of Natural Resources and Environment

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“土壤与环境科学”主题系列学术报告会顺利举办

来源: 科研推广办公室 作者: 发布日期: 2023-09-01 浏览次数: 0

8月23日上午, 应学院贾汉忠教授邀请, 南京大学谷成教授、天津大学余光辉教授、浙江大学罗煜副教授、中国科学院城市环境研究所朱冬研究员以及中国科学院南京土壤研究所叶茂副研究员在资环学院307会议室为师生作学术报告, 会议由贾汉忠教授主持, 学院领导、相关专业师生参加了此次报告。





谷成教授作了题为“非水相土壤矿物界面催化有机污染物降解机制研究”的报告, 阐释了有机污染物在土壤矿物上的降解机理。余光辉教授的报告题为“矿物-真菌互作与有机污染物降解”, 分析了矿物-真菌对环境中有机污染物的降解过程, 指出了微生物对有机污染物降解的重要作用。罗煜副教授报告了“养分调控生物代谢在土壤固碳中的作用”, 对土壤有机碳循环周转的研究具有重要意义。

朱冬研究院员报告题目“〈微〉塑料对抗生素抗性基因传播扩散的影响”, 对环境污染物的生态毒性效应、风险评价与修复研究有重要的参考价值。叶茂副研究员作了题为“铬污染土壤中噬菌体与宿主互作适应机制”的报告, 在土壤重金属污染方面提供了更多研究方向。

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（三）学术沙龙

【资环学院】夏季学期第一期研究生学术沙龙成功举办

<https://news.nwafu.edu.cn/yxxw/9e8527ef6a99495ebfdceca923343cb4.htm>

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【资环学院】夏季学期第一期研究生学术沙龙成功举办

来源: 资环学院 作者: 胡涛 宋籽霖 王正师 严小良 发布日期: 2022-07-12 浏览次数:

为丰富研究生夏季学期学习生活，7月5日，资环学院第一期系列研究生学术沙龙举办，主题为“乡村振兴背景下，我们大有可为：情怀、责任、方法”。本次学术沙龙活动以学院宋籽霖副教授、王正师副教授为发起人，邀请农学院冯永忠教授、水土保持研究所张超研究员、资环学院张育林副教授和张达斌副教授与研究生进行经验交流和心得分享。

冯永忠教授以乡村振兴的青年担当为主题，全面分析了乡村振兴战略下人才培养需求；提出乡村振兴青年应具备三农情怀、多学科知识储备和包括实践调查与分析、规划与谋划、沟通交流、项目执行与落实、领导协调在内的五种能力，他强调，青年人要在乡村振兴的伟大战略中强本领，重参与、提建议、勤实践、多思考，在奋斗中成就自我，让农民受益，让青春无悔。



张超研究员针对研究生阶段的时间管理问题，提出四点要求，第一制定合理的目标；第二学会选择，设定优先级，敢于拒绝；第三把时间管理细化到每一天；第四要有deadline的概念，尽可能提前完成任务。

张育林副教授强调，面对科研过程中的瓶颈，要有坚定的目标，要做到勤动手勤思考勤交流。张达斌副教授分享了与导师高效沟通交流的经验，鼓励同学增强与导师的交流。活动过程中同学与老师们积极讨论，针对同学提出的科研和生活中的问题，老师们详细地进行了解答。

本次活动旨在丰富研究生夏季学期生活，厚植学生知农爱农的“三农情怀”，增强学生社会责任感，帮助学生找准定位，探讨高效学习、沟通和快乐生活的妙招。系列研究生学术沙龙活动共五期，全部在夏季学期举办。

<https://zhxy.nwsuaf.edu.cn/xyxw/77d0607530aa4283bc0595294011eb7e.htm>



【夏季学期进行时】以“植被生态遥感监测”为主题的第三期研究生学术沙龙成功举办
<https://zhxy.nwsuaf.edu.cn/xyxw/0fbb5046f8c9498ba24573d4f33080b8.htm>

校友工作

[首页](#) [学院新闻](#) [【夏季学期进行时】以“植被生态遥感监测”为主题的第三期研究生学术沙龙成功举办](#)

- 合作交流

【夏季学期进行时】以“植被生态遥感监测”为主题的第三期研究生学术沙龙成功举办

来源: 作者: 裴晨阳 郭义军 李莹莹 严小良 发布日期: 2022-07-15 浏览次数: 943

为丰富我校研究生夏季学期生活,启发研究生科研方向,助力遥感在植被生态领域的应用,7月11日,由资环学院主办的“植被生态遥感监测”学术沙龙活动如期举行。由刘金成、张庆玮和赵龙才三位副教授共同发起,得到了各学院相关专业师生的积极响应,最终由来自资环学院、水保所、林学院、草业学院、风景园林学院、理学院等单位的11名青年教师、11名博士生和10名硕士生共同参与。



本期活动邀请水保所副研究员和资环学院王小平副教授作为主讲嘉宾。刚成诚老师分享的主题是“基于多源遥感数据的植被动态监测与生态动力分析”，以植被的行业应用和植被指数曲线为出发点，以我国19个生态工程数据为背景，围绕师生生态资源、水、植被环境学科问题，从“格局-过程-机理”层面重点阐述了我国植被生态监测现状以及存在的问题。王小平老师以“植被生化参数遥感及应用”为题，围绕叶绿素含量遥感反演、光合参数遥感反演以及生态过程模型中的应用展开，重点针对双植被指数矩阵、最大光谱差NDVI进行了深入讲解，并对黄土高原典型地形下遥感植被参数反演做了介绍。两位老师对内容的严谨和对植被生态监测的热情，赢得了现场参会者的热烈掌声。同时，他们幽默风趣的讲述方式更是引起在场人员的一阵阵会心笑声。

【夏季学期进行时】第四期研究生学术沙龙成功举办

<https://zhxy.nwsuaf.edu.cn/xyxw/30538a56ac68400bbfbdb71377af1dd7.htm>



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资源环境学院
College of Natural Resources and Environment

搜索关键字

首页学院概况师资队伍学科建设本科生教育研究生教育科研推广学生工作党建工作校友工作

学院新闻通知公告合作交流

【夏季学期进行时】第四期研究生学术沙龙成功举办

来源：作者：王子琳/石美/严小良发布日期：2022-07-21浏览次数：800

实现“碳达峰”“碳中和”是我国发展的重大战略目标。农业既是重要的温室气体排放源，又是巨大的碳汇系统。如何实现农业绿色低碳发展，是推进“双碳”战略目标实现必须关注的重要领域。为深入剖析“双碳”战略内涵，探讨“双碳”目标下农业绿色发展模式，同时，拓展研究生的学术视野，锻炼学生思维，活跃学术氛围，资环学院于2022年7月16日下午在经管学院咖啡厅举办了“双碳战略与农业绿色发展”为主题的第四期学术沙龙活动。

本期活动由资源环境学院石美、刘鹏两位青年教师共同发起，邀请资源环境学院贾汉忠教授、经管学院王雅楠副教授作为主讲嘉宾，吸引了来自资源环境学院及兄弟学院的硕士、博士研究生近30人参加。



贾汉忠教授作学术报告

<https://zhxy.nwsuaf.edu.cn/xyxw/d2143161e3bf4895a48e1bdd5d3d3dbe.htm>

五、研究生以第一作者身份发表的代表性论文首页（20 篇）

1. New Insight into Adsorption Mechanism of Ionizable Compounds on Carbon Nanotubes

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New Insight into Adsorption Mechanism of Ionizable Compounds on Carbon Nanotubes

Xiaoyun Li^{†‡}, Joseph J. Pignatello[§], Yiquan Wang[†], and Baoshan Xing^{†‡}

View Author Information

Cite this: *Environ. Sci. Technol.* 2013, 47, 15, 8334–8341

Publication Date: June 25, 2013

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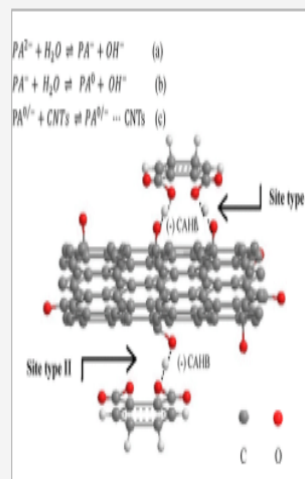
PDF (1 MB)

Supporting Info (1)

SUBJECTS: Adsorption, Anions, Carbon nanotubes, Mathematical methods, pH

Abstract

We studied the pH-dependent adsorption of benzoic acid (BA), phthalic acid (PA), and 2,6-dichloro-4-nitrophenol (DCNP) by hydroxylated, carboxylated, and graphitized carbon nanotubes (CNTs). Adsorption is contributed by formation of a negative charge-assisted H-bond (–)CAHB between a carboxyl group on the solute and a phenolate or carboxylate group on the surface having a comparable pK_a . This exceptionally strong H-bond is depicted as $(RCO_2 \cdots H \cdots O-CNTs)^-$. Over a limited pH range the free anion undergoes proton exchange with water concurrent with adsorption, releasing hydroxide ion in a stoichiometry of up to 1.0 for BA, 1.7 for PA, and 0.5 for DCNP. Little hydroxide is released upon adsorption by the O-sparse graphitized CNTs. Anion exchange and ligand exchange reactions as a source of hydroxide release were ruled out. The higher stoichiometry for PA indicates involvement of both carboxyl groups with adjacent surface oxy groups. The lower stoichiometry for DCNP is consistent with steric inhibition of H-bonding by the ortho chlorines. Formation of (–)CAHB helps overcome the unfavorable free energy of proton exchange with water, and results in an upward shift in the pK_a in the adsorbed state compared to the dissolved state from 0.9 to 3.1 units. The proposed mechanism is further supported by additional structure–activity considerations. The findings provide new understanding of the interactions between ionizable organic compounds and carbonaceous surfaces, which has implications for noncovalent derivatization of CNTs, fate of ionizable pollutants, and associations of natural organic matter with CNTs and other carbonaceous materials in the environment.



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2. Influence of Residue and Nitrogen Fertilizer Additions on Carbon Mineralization in Soils with Different



Influence of Residue and Nitrogen Fertilizer Additions on Carbon Mineralization in Soils with Different Texture and Cropping Histories

Xianni Chen¹, Xudong Wang^{1*}, Matt Liebman², Michel Cavigelli³, Michelle Wander^{4*}

¹ College of Resources and Environment, Northwest A&F University, Yangling, Shaanxi, P.R. China, ² Department of Agronomy, Agronomy Hall, Iowa State University, Ames, Iowa, United States of America, ³ Sustainable Agricultural Systems Lab, Agricultural Research Center, Beltsville, Maryland, United States of America, ⁴ Department of NRES, University of Illinois, Urbana-Champaign, Illinois, United States of America

Abstract

To improve our ability to predict SOC mineralization response to residue and N additions in soils with different inherent and dynamic organic matter properties, a 330-day incubation was conducted using samples from two long-term experiments (clay loam Mollisols in Iowa [IASoil] and silt loam Ultisols in Maryland [MDSoil]) comparing conventional grain systems (Conv) amended with inorganic fertilizers with 3 yr (Med) and longer (Long), more diverse cropping systems amended with manure. A double exponential model was used to estimate the size (C_p , C_s) and decay rates (k_p , k_s) of active and slow C pools which we compared with total particulate organic matter (POM) and occluded-POM (OPOM). The high-SOC IASoil containing highly active smectite clays maintained smaller labile pools and higher decay rates than the low-SOC MDSoil containing semi-active kaolinitic clays. Net SOC loss was greater (2.6 g kg^{-1} ; 8.6%) from the IASoil than the MDSoil (0.9 g kg^{-1} ; 6.3%); fractions and coefficients suggest losses were principally from IASoil's resistant pool. Cropping history did not alter SOC pool size or decay rates in IASoil where rotation-based differences in OPOM-C were small. In MDSoil, use of diversified rotations and manure increased k_p by 32% and k_s by 46% compared to Conv; differences mirrored in POM- and OPOM-C contents. Residue addition prompted greater increases in C_p (340% vs 230%) and C_s (38% vs 21%) and decreases in k_p (58% vs 9%) in IASoil than MDSoil. Reduced losses of SOC from residue-amended MDSoil were associated with increased OPOM-C. Nitrogen addition dampened CO_2 -C release. Clay type and C saturation dominated the IASoil's response to external inputs and made labile and stable fractions more vulnerable to decay. Trends in OPOM suggest aggregate protection influences C turnover in the low active MDSoil. Clay charge and OPOM-C contents were better predictors of soil C dynamics than clay or POM-C contents.

Citation: Chen X, Wang X, Liebman M, Cavigelli M, Wander M (2014) Influence of Residue and Nitrogen Fertilizer Additions on Carbon Mineralization in Soils with Different Texture and Cropping Histories. PLoS ONE 9(7): e103720. doi:10.1371/journal.pone.0103720

Editor: Upendra M. Sainju, Agricultural Research Service, United States of America

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Data Availability: The authors confirm that all data underlying the findings are fully available without restriction. All relevant data are within the paper.

Funding: Financial support was given by NIFA (Hatch) LLU-875-320, and grants from the Leopold Center for Sustainable Agriculture (Project 2010-002) and the Iowa Soybean Association. This project was also partially funded by the National 15th Key Technology R&D Program of the Ministry of Science and Technology-Technology Integration and Demonstration of Agriculture-Fruit-Livestock Industry Recycling in Loess Plateau, China (2012BAD14811). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: The authors received funding from the professional association Iowa Soybean Association, but this does not alter the authors' adherence to PLOS ONE policies on sharing data and materials. There are absolutely no restrictions on sharing of data and/or materials derived from the authors' work.

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Introduction

To manage soil sustainability, crop rotation, tillage, fertilization and other management practices must be combined in ways that improve or maintain soil carbon stocks and reduce net carbon loss [1–3]. Use of diversified farming systems that rely on crop rotation and return of crop residues and/or manures is advocated as one way to improve agricultural sustainability and increase soil organic carbon (SOC) [4–6]. Diversified crop rotations benefit the soil by varying the quantity, quality, and spatial and temporal placement of organic matter inputs, which therefore altered the physical and biochemical factors and influenced decay of SOC [7]. The ability of the management practice to alter SOC is likely to vary with inherent soil properties, such as clay content, mineralogy and pH [8–10]. Dynamic properties like particulate organic matter (POM) that are sensitive to management and change within relatively

short time frames (years to decades) may help us predict whether or how SOM status might be improved. Failure to accumulate SOC with increased C additions can occur when soil is already C saturated [11], or in instances where decay rates are high due to stoichiometric imbalance usually caused by high levels of available N [12,13]. Several studies suggest that manure application can accelerate SOC decay rates [14,15]. Both the frequency of manure addition and crop rotation length (diversity) have been linked to increased levels of available soil N [16]. This suggests that longer rotations with less frequent manure application might be better able to sequester C in soil. In order to optimize soil C cycling to maintain soil productivity and environmental function, we need to be able to predict how soils C dynamics will respond to management.

3. Fate of nitrogen from green manure, straw, and fertilizer applied to wheat under different summer fallow management strategies in dryland

Biol Fertil Soils (2015) 51:769–780
DOI 10.1007/s00374-015-1023-2

ORIGINAL PAPER

Fate of nitrogen from green manure, straw, and fertilizer applied to wheat under different summer fallow management strategies in dryland

Fucui Li^{1,2,3} · Zhaohui Wang^{1,2,3} · Jian Dai^{1,2,3} · Qiang Li^{1,2,3} · Xiang Wang² · Cheng Xue^{1,2,3} · Hui Liu^{1,2,3} · Gang He^{1,2,3}

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Abstract Returning crop residues to soil is an effective approach for sustaining organic matter concentrations and increasing nutrient availability in soils. A 2-year micro-plot field experiment was conducted in dryland to determine the green manure, straw, and fertilizer nitrogen (N)-15 uptake by wheat, their residual N in soil and losses; the effect of straw application on the fate of N from green manure and vice versa was also determined, as well as the effect of crop residue additions on the fate of fertilizer N. All the micro-plots were treated with the same amount of ¹⁵N-labeled or unlabeled fertilizer. The green manure N uptake by wheat, residual N, and N loss were 22.4, 51.7, and 25.9 % of the total added green manure N over the 2-year experiment. Straw addition significantly decreased the green manure residual soil N but increased the cumulative losses. The straw N taken up by wheat, residual N in soil, and N loss were 8.3, 31.0, and 60.7 %, respectively. Green manure addition significantly decreased the straw N taken up by wheat, increased the residual soil N, and reduced the N loss. Furthermore, the fertilizer N taken up by wheat, residual N in soil, and N loss were 32.4, 32.3, and 35.2 %, respectively. Crop residue additions significantly increased the uptake of fertilizer N by wheat in the second year.

The application of inorganic N fertilizer in combination with appropriate crop residues may be an effective approach to improve the long-term fertilizer N use efficiency, soil quality, and crop yield in wheat–summer fallow rotation systems in dryland.

Keywords Green manure · Straw · Inorganic fertilizer · Nitrogen-15 · Wheat · Dryland

Introduction

China is the world's largest fertilizer consumer and accounts for 90 % of the global increase in fertilizer use since 1981 (Liu and Diamond 2005). On the North China Plain, farmers apply 325 kg N ha⁻¹ each year, which did not significantly increase winter wheat yield but did result in high greenhouse gas emissions and reactive N losses (Cui et al. 2013). Moreover, on the dryland of Northwest China, a large amount of nitrate (1065 kg N ha⁻¹) has been accumulated in the 0–3-m soil profile, at a rate of 120 kg N ha⁻¹ year⁻¹ for 17 years, and the accumulation extended deeper into the soil during the wet season (Guo et al. 2010). These negative effects are worsening and raising concerns worldwide, especially for rapidly developing countries (Chen et al. 2011; Erisman et al. 2007). Therefore, the pursuit of more sustainable pathways for increasing crop production is of global interest (Kirchmann et al. 2002).

Returning crop residues (e.g., crop straw) and green manure to the soil is an effective approach for sustaining organic matter concentrations, enhancing biological activity, improving physical properties, and increasing nutrient availability in soil (Smith et al. 1992). Green manure from legumes is widely known to provide N to soils through biological N fixation, and this can increase the soil N supply to subsequent crops and replace the addition of a part of inorganic N fertilizers (Drinkwater et al. 1998;

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4. The Effects of Long-term Fertiliser Applications on Soil Organic Carbon and Hydraulic Properties of a Loess Soil in China

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THE EFFECTS OF LONG-TERM FERTILISER APPLICATIONS ON SOIL ORGANIC CARBON AND HYDRAULIC PROPERTIES OF A LOESS SOIL IN CHINA

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ABSTRACT

Based on a 28-year *in situ* experiment, this paper investigated the impacts of organic and inorganic fertiliser applications on soil organic carbon (SOC) content and soil hydraulic properties of the silt loam (Eumorphic Anthrosols) soils derived from loess soil in the Guanzhong Plain of China. There were two crop (winter wheat and summer maize) rotations with conventional tillage. The treatments included control without fertiliser application, organic manure application (M), chemical fertiliser application (NP), and the application of organic manure with chemical fertiliser (MNP). The results showed that the 28-year organic manure applications (M and MNP) significantly ($p < 0.05$) increased SOC content at surface layer (0–10 cm), but the effect of chemical fertilisers alone on SOC was not significant. Organic manure treatments (M and MNP) apparently improved soil hydraulic properties. Compared with control, field capacity and total porosity significantly ($p < 0.05$) increased while soil bulk density significantly ($p < 0.05$) decreased for organic manure applications. The M and MNP treatments increased soil water retentions by 3.2–10.8%, which was dependent of suction tensions. However, the NP treatment had no significant impact on soil water retention compared with control. Neither organic nor inorganic fertiliser applications significantly changed saturated hydraulic conductivity. However, a clear difference was observed for unsaturated hydraulic conductivity between the M and the control at 0–5 cm. Overall, long-term applications of organic manuring increased SOC content and amended soil hydraulic properties. However, the effects of chemical fertilisers on these soil properties were limited. Copyright © 2015 John Wiley & Sons, Ltd.

KEY WORDS: fertiliser applications; soil organic carbon; hydraulic conductivity; soil water retention; bulk density

INTRODUCTION

Soil organic carbon (SOC) is critical to soil functioning by affecting soil biological, physical and chemical properties (Lal *et al.*, 1999; Ding *et al.*, 2012). Increase of SOC in agricultural soils not only improves soil quality and increases crop productivity but also alleviates global warming, providing “win-win” benefits (Lal, 2004). Soil hydraulic properties that are impacted by SOC are also important soil quality indicators and regulate soil wetness conditions. Generally, SOC and soil hydraulic properties are strongly influenced by land use patterns/changes (Neris *et al.*, 2012; Saha *et al.*, 2014) and soil management practices including tillage (Parras-Alcántara *et al.*, 2015), crop rotation (Campbell & Zentner, 1993), and organic and inorganic fertiliser applications (Barbera *et al.*, 2012; Srinivasarao *et al.*, 2014). Here, we mainly focused on the effects of long-term fertiliser applications on SOC and soil hydraulic properties.

Globally, over the last 160 years, there has been an extensive body of research investigating the effects of fertiliser application on SOC. When analysing the effects of fertiliser applications on SOC, long-term experiments are usually needed. This is because most SOC changes require many years to be detectable by present analytical methods

(Ludwig *et al.*, 2011). Ludwig *et al.* (2011) found that approximately 40-year cattle manure applications at common rates (30 t ha⁻¹ every 2 years) increased both labile and intermediate SOC stocks in loess soils in German. Ding *et al.* (2012) found that manure applications at three rates (7.5, 15 and 22.5 t ha⁻¹ y⁻¹) significantly ($p < 0.05$) enhanced total SOC, labile C pools and recalcitrant C pool of a loamy loess soil based on 10-year experiments in northeastern China. Yang *et al.* (2012) studied various combinations of chemical fertilisers and manure applications (13.7 and 20.6 t ha⁻¹ y⁻¹) on SOC following a 20-year experiment on the Loess of Plateau of China and found that both of them significantly increased the total SOC and labile C pools. They further reported that SOC increased with the rates of manure application and that manure amendment had greater benefits in increasing SOC than chemical fertilisers. Gong *et al.* (2011) and Tong *et al.* (2009) also found that organic manuring was more effective in enhancing total and labile SOC pools compared with chemical fertiliser alone. Furthermore, using organic manure together with chemical fertilisers could be a better avenue to produce greater size of SOC pools than application of mineral fertilisers alone (Ding *et al.*, 2012). Rudrappa *et al.* (2006) argued that long-term application of chemical fertilisers and organic manures was the most efficient manuring practice for preserving SOC in semiarid subtropical land cropped with maize–wheat–cowpea in India. Hati *et al.* (2008) and Jaiarree *et al.* (2014) reported similar findings.

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5. Kinetics of soil dehydrogenase in response to exogenous Cd toxicity

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Kinetics of soil dehydrogenase in response to exogenous Cd toxicity



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HIGHLIGHTS

- pH explained 30–45% of the dehydrogenase activity (DHA), V_{max} , and K_m variations across soils.
- Different inhibition mechanism of Cd to DHA varied soil types.
- Soil properties and inhibition constant affect the toxicity of Cd.
- Reaction constant (k) could indicate sensitively the toxicity of Cd to DHA.

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ABSTRACT

Soil dehydrogenase plays a role in the biological oxidation of soil organic matter and can be considered a good measure of the change of microbial oxidative activity under environmental pollutions. However, the kinetic characteristic of soil dehydrogenase under heavy metal stresses has not been investigated thoroughly. In this study, we characterized the kinetic characteristic of soil dehydrogenase in 14 soil types, and investigated how kinetic parameters changed under spiked with different concentrations of cadmium (Cd). The results showed that the K_m and V_{max} values of soil dehydrogenase was among 1.4–7.3 mM and 15.9–235.2 μMh^{-1} in uncontaminated soils, respectively. In latosolic red soil and brown soil, the inhibitory kinetic mechanism of Cd to soil dehydrogenase was anticompetitive inhibition with inhibition constants (K_i) of 12 and 4.7 mM, respectively; in other soils belonged to linear mixed inhibition, the values of K_i were between 0.7–4.2 mM. Soil total organic carbon and K_i were the major factors affecting the toxicity of Cd to dehydrogenase activity. In addition, the velocity constant (k) was more sensitive to Cd contamination compared to V_{max} and K_m , which was established as an early indicator of gross changes in soil microbial oxidative activity caused by Cd contamination.

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1. Introduction

Contamination of soil with heavy metals is of considerable concern due to the detrimental effects on soil environments and human health. Cadmium (Cd) is one of the most toxic heavy metals that may impose adverse impacts on nearly all biological processes [1,2]. A certain amount of Cd may reduce photosynthesis and protein synthesis rates, interfere stomatal opening, and therefore affect

the growth of sensitive plants [3]. Furthermore, Cd in contaminated soils may be taken up by plant roots, exposed to humans through food chains, and cause many hazards such as kidney disease, skeletal damage, and cancers [4,5]. It is estimated that about $9.9\text{--}45 \times 10^6$ kg of Cd is introduced into terrestrial soils annually through fertilizer application, sewage irrigation, atmospheric precipitation, and industrial and mining waste emissions [6,7]. Cd concentration in contaminated soils ($0.6\text{--}1781 \text{ mg kg}^{-1}$) is now much higher than the background value (0.41 mg kg^{-1}) of the world [8,9]. Understanding the mechanisms of Cd pollution on soil biochemical processes is helpful for identifying their environmental exposure risks and providing important information for the remediation of contaminated soils [10].

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6. Effects of bacterial cell density and alternating microbial- and enzymolysis-enhanced oil recovery on oil displacement efficiency

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Effects of bacterial cell density and alternating microbial- and enzymolysis-enhanced oil recovery on oil displacement efficiency



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HIGHLIGHTS

- Low cell density had higher oil displacement efficiency than high cell density.
- Microbial–enzymolysis enhanced oil recovery had higher efficiency than water flooding.
- Vaporizable fractions decreased (increased) in microbial (enzymolysis) displaced oil.
- Residual oil contained fewer saturates for the treatments compared to the control.
- Mainly injected and indigenous bacterial species harbored the displaced fluid.

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ABSTRACT

In the present study, the effects of bacterial cell density on microbial enhanced oil recovery (MEOR) and enzymolysis enhanced oil recovery (EEOR) were investigated. A simulated oil displacement test was conducted to determine the displacement efficiency of bacterial (*Pseudomonas aeruginosa*) fermentation broth with different cell densities (high, HCF; low, LCF), crude fungal (*Aspergillus oryzae*) enzyme solution (CES), and MEOR alternating EEOR (HCF-CES and LCF-CES). The displacement efficiency for LCF was 1.7-fold that of HCF, and the displacement efficiency for CES was 4.6–6.0-fold that of water (control). The total displacement efficiencies of LCF-CES and HCF-CES for five displacements were 9.4-fold and 6.2-fold higher than controls, respectively. The relative quantity of vaporizable fractions in the displaced oil decreased after MEOR and increased after EEOR. The residual oil in the upper portion of the displacement tube contained fewer saturates (half or less) and increased resins (2-fold or higher) for LCF-CES and HCF-CES, compared with controls. Compared with the injected fluid, the displaced fluid had a lower pH, oil-spreading diameter, and surface tension, with substantial gas production and no dehydrogenase activity. The displaced fluid contained numerous culturable bacteria dominated by injected (*P. aeruginosa*) and indigenous (*Bacillus atrophaeus*, *B. cereus*) species. The results demonstrate a significant effect for bacterial cell density on oil displacement efficiency, and increased oil displacement following EEOR. Alternating MEOR and EEOR combines oil displacement by bacterial surfactants and oil degradation by fungal enzymes and this novel technical approach appears to substantially improve crude oil recovery.

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1. Introduction

In conventional crude oil extraction, difficulties arise when oil recovery decreases gradually following extended extraction times, and in some cases, a third or even a half of crude oil may be difficult to recover [1,2]. As an alternative to finding new oil reservoirs, microbial enhanced oil recovery (MEOR) is an inexpensive and

environmentally friendly technique that can effectively improve crude oil recovery and has received widespread attention [3].

MEOR relies on the reproduction or metabolites of microorganisms (mainly bacteria) to directly or indirectly act on oil formation [4,5]. Regarding direct effects, exogenous nutrients are added to the formation to trigger indigenous microbes. Alternatively, exogenous bacteria are injected into the formation, which grow and reproduce in formation pores using crude oil as a carbon source [6]. The bacterial cells may block large pores and throats in the formation and thus improve oil recovery [7–10]. Regarding indirect effects, bacteria produce metabolites such as surfactants, biogases, bioacids, and biopolymers that can alter the oil–water interfacial

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7.Synthesis of g-C₃N₄ by different precursors under burning explosion effect and its photocatalytic degradation for tylosin

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Synthesis of g-C₃N₄ by different precursors under burning explosion effect and its photocatalytic degradation for tylosin



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ABSTRACT

The use of abundant sunlight for semiconductor photo-degradation of antibiotics is an ideal way to solve global water pollution. Here, the sodium nitrate modified photocatalysts exhibits enhanced photocatalytic efficiency for degradation of tylosin under simulated sunlight irradiation over g-C₃N₄ alone. In addition, the pure g-C₃N₄ and sodium nitrate modified g-C₃N₄ photocatalysts were investigated in terms of their crystal structures, morphologies, optical properties by using XRD, SEM, TEM, Raman, FTIR, UV-vis and XPS. On the basis of these results, the morphology dependence of the visible light absorption and the photocatalytic efficiency under simulated sunlight irradiation has been systematically investigated. It was found that the type of precursors and the molar ratio of sodium nitrate have an evident impact on the crystal structure of g-C₃N₄, and photocatalytic performance due to varied reaction pathways and degree of condensation. The photocatalytic activity evaluated under simulated sunlight indicates that the as-synthesized photocatalysts is effective in obtaining the energy of solar spectrum and transforming it into the chemical energy for tylosin degradation.

1. Introduction

Water is the fountain of life. Especially for humans, clean and safe water is the basic standards of our modern life. However, many organic contaminants are frequently detected in water, for example like antibiotics are one of the most commonly detected contaminants from surface water [1–3]. At present, antibiotics residues are frequently detected in a wide range of environmental samples, especially in treated wastewater and even drinking water [4–6]. The residual antibiotics are thrown to water courses and soils, even in low concentration, may lead to the emergence of drug resistance among pathogenic microbes, and even result in the formation of cross- and multiple- resistances in organisms [7,8]. Therefore, the occurrence and transfer of antibiotics in the environment is recognized as one of the most serious global threats to human and animal health [3,5]. However, the presence of different antibiotics in the wastewater treatment plant has been found in concentrations of the order of $\mu\text{g L}^{-1}$ and ng L^{-1} , showing that the conventional wastewater treatments are not effective for their removal [9–11]. Therefore, it is importance to develop an environmentally friendly strategy for the removal of antibiotics in contaminated waters.

Until now, different techniques are applied to remove antibiotics

from waste water, such as sorption, photocatalytic degradation, oxidation and biodegradation. Among them, photocatalytic degradation is considered as one of the most promising methods because of its high efficiency, eco-friendly character and low cost [12–16]. Recently, graphitic carbon nitride (g-C₃N₄), as an environmentally-friendly organic semiconductor, has attracted worldwide attentions [17]. This material can be prepared easily through thermal polymerization of different nitrogen-rich precursors such as melamine, urea, dicyandiamide and thiourea [18,19]. g-C₃N₄ possesses a high chemical and thermal stability as well as unique optical and electronic properties [20]. Up to now, g-C₃N₄ has been used as a photocatalyst to reduce CO₂, generate hydrogen from water and decompose pollutants [21–24]. However, the photocatalytic efficiency of bulk g-C₃N₄ is limited because of its fast charge recombination, low surface-to-volume ratio, and weak redox ability [25,26]. To improve the photocatalytic activity of g-C₃N₄, many strategies have been proposed by increasing of the surface-to-volume ratio, changing morphology, combining with other semiconductors and doping metal/non-metal ions [15,19,27–30]. Among these methods, changing morphology and crystal structure of g-C₃N₄ can increase the number of active sites, which is beneficial for the photocatalytic degradation [31,32]. In addition, a large number of

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8. Responses of fungal–bacterial community and network to organic inputs vary among different spatial habitats in soil

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Responses of fungal–bacterial community and network to organic inputs vary among different spatial habitats in soil

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ARTICLE INFO

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Fungi
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Soil network

ABSTRACT

Interactions among the species in microbial communities are important for organic matter turnover and nutrient cycling in the soil. Their responses to organic amendments have been studied recently but the co-occurrence patterns in different spatial soil habitats such as those with different sized aggregates are still unclear. Thus, we investigated networks comprising bacteria and fungi after the application of a cover crop for 9 years. The microbial community compositions and their co-occurrence networks were examined in the whole soil and different sized soil aggregates (> 0.25 mm, 0.053–0.25 mm, and < 0.053 mm). The microbial community compositions and their responses to the cover crop varied in the whole soil and aggregate fractions. Network analysis in the whole soil and different sized aggregates showed that the competition between fungi and bacteria in the whole soil increased due to the annual organic material input, but the fungi–bacteria relationships varied among different sized aggregates. In particular, the competition between fungi and bacteria increased in macro-aggregates but decreased in silt + clay due to organic material inputs. Thus, the co-occurrence networks determined for the fungal and bacterial communities in various soil aggregates were very different from those in the whole soil, and their responses to organic inputs also varied in different spatial habitats in the soil.

1. Introduction

Soil fungi and bacteria are important for soil biochemical processes and functions. In soils, various species of fungi and bacteria live together to form a complex system of inter-species interactions rather than living in isolation (Freilich et al., 2010). Thus, it is important to understand the interactions among community members and the organization of fungal and bacterial communities as well as the abundance and diversity of each taxon in order to explore the functioning of the soil (Deng et al., 2012; Lu et al., 2013). Network analysis-based approaches have been used recently to study the co-occurrence of microorganisms in complex environments ranging from the human gut to oceans and soils (Ruan et al., 2006; Fuhrman and Steele, 2008; Faust and Raes, 2012; Chow et al., 2013). Using this technique, the characteristic co-occurrence patterns have been determined at various taxonomic levels and keystone microbial groups have been identified in different soils (Lupatini et al., 2014).

Several studies have shown that the soil microbial community structure and network can be influenced by the soil pH, organic matter content, and soil disturbance level (Eldridge et al., 2015; Creamer et al.,

2016). In many cases, the levels of soil nutrients, such as the soil carbon and nitrogen contents, are the key factors related to shifts in the soil microbial community structure and network. Organic amendment can affect the microbial diversity as well as the relative abundances of copiotrophic and oligotrophic bacteria (Trivedi et al., 2015; Brennan and Acosta-Martinez, 2017; Zhang et al., 2017). Moreover, organic material inputs significantly alter the network of fungal and bacterial communities, where the identities of the interacting species are driven by resources rather than being species-specific (Banerjee et al., 2016b). However, previous studies have mainly focused on the microbial networks in the whole soil, and thus the responses of microbial networks to changes in the soil environment, especially organic material inputs, are still unclear in different soil aggregates.

Soils have a complex hierarchical structure where they contain different sized aggregates. These soil aggregates generally vary in terms of their nutrient availability and environmental conditions, and they can provide spatially heterogeneous habitats for microorganisms (Jiang et al., 2013, 2017). Previous studies have shown that each aggregate represents a different ecological niche for microbial colonization (Trivedi et al., 2015). In soil aggregates with different sizes, the

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9. Evidences for replacing legacy per- and polyfluoroalkyl substances with emerging ones in Fen and Wei River basins in central and western China



Evidences for replacing legacy per- and polyfluoroalkyl substances with emerging ones in Fen and Wei River basins in central and western China

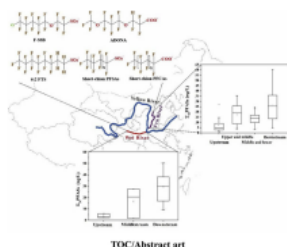


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GRAPHICAL ABSTRACT



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ABSTRACT

Legacy per- and polyfluoroalkyl substances (PFASs), mainly long-chain ones, are being substituted by short-chain homologues and novel fluorinated alternatives, whereas their occurrence, spatial distribution, sources and substitution characteristics are not well understood. For the first time, the occurrence and replacing trend of the legacy and novel fluorinated alternatives were examined in the surface water from Fen and Wei rivers, which are the two major rivers located in the underdeveloped and ecology vulnerable areas of central and western China. Results showed that the contamination of legacy and emerging PFASs in both river basins was widespread, and mainly caused by industrial activities. In both rivers, perfluorohexane sulfonic acid (PFHxS), as a substitute for perfluorooctane sulfonic acid (PFOS), was predominant in the urban areas. In the Fen River, more substitutes of PFOS, such as 6:2 fluorotelomer sulfonate (6:2 FTS) and 6:2 chlorinated polyfluorinated ether sulfonate (6:2 Cl-PFESA), were distinct, while significant replacing for PFOA with short-chain perfluoroalkyl carboxylic acids (C4-C7) and Ammonium salt of 4,8-dioxa-3H-per-fluorononanoate (ADONA) was observed in Wei River. Besides, advanced oxidation experiment indicated that there were unknown PFASs which could be the precursors of perfluorocarboxylic acids in Wei River. Isomeric analyses indicated that there was contribution of telomerization related sources for PFOA in both rivers, whereas PFOS was mainly from ECF. The estimated total mass discharge of PFASs derived from Wei and Fen River to the Yellow river were 239 and 62.6 kg/year, respectively.

10.High temperature depended on the ageing mechanism of microplastics under different environmental conditions and its effect on the distribution of organic pollutants

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High temperature depended on the ageing mechanism of microplastics under different environmental conditions and its effect on the distribution of organic pollutants



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Organic pollution

ABSTRACT

Microplastics, as an emerging class of pollutants has become a global concern, and is receiving increasing attention. Interestingly, microplastics are always in their ageing process when they enter the real environment. Our study investigated the ageing properties of polystyrene (PS) plastics in air, pure water and seawater environments at 75 °C. A two-dimensional (2D) Fourier transform infrared (FTIR) correlation spectroscopy (COS) analysis was used to better understand the ageing mechanism of the PS plastics. Based on the 2D-COS analysis, different ageing mechanisms were identified under different ageing conditions, such as an ageing sequence of aged-PS particle functional groups in air: 1601(C=C) > 1050(C-O) > 1453(C-H) > 1493(C-H) > 1375(C-OH) > 1666(C=O). Among the functional group changes, O-functional groups (C-O, C-OH and C=O) were introduced during the ageing process. Moreover, for pristine PS particles, hydrophobicity was a major factor for the interaction between the microplastics and organic pollutants. For aged-PS particles, their adsorption capacities were significantly enhanced as the degree of ageing increased. The ageing degree of PS was highly responsible for increasing of the specific surface area and the increase in oxygen-containing surface groups. Furthermore, there was a significant enhancement in the adsorption affinity for antibiotic contaminants than for polycyclic aromatic hydrocarbon contaminants. Aged PS particles had little adsorption of polycyclic aromatic hydrocarbons, because the presence of oxygen-containing surface groups on the aged PS plastics might allow the formation of hydrogen bonds with the surrounding water molecules. Overall, a 2D-COS analysis was an effective method for understanding the ageing process of microplastics under different environmental conditions at high temperature. These results also clearly demonstrated the characteristics and mechanisms of the interaction between aged-microplastics and organic pollutants, which could be useful for understanding the environmental behavior of co-existing pollutants.

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1. Introduction

Microplastics (MPs) in the environment, defined as polymer particles with a size of less than 5 mm, have received increasing attention from scientists and the public (Charles James, 2008; Matthew et al., 2011). MPs have been observed all over the world, including in water ecosystems (Ding et al., 2019; Eerkesmedrano et al., 2015; Keller et al., 2010), soil (Rillig, 2012), and even several biotas such as fish (Lusher et al., 2013), birds (Holland et al., 2016),

and mussels (Cauwenberghe et al., 2015). Due to their small size, large specific surface area and strong hydrophobicity, MPs are ideal carriers of many hydrophobic organic pollutants, heavy metals, potential pathogens and alien species, which are prone to causing many environmental problems (Hodson et al., 2017). Additionally, MPs can also be retained in living organisms for a long time; furthermore, MPs can be transferred and enriched in the food web, which poses a threat to the balance of the ecosystem and seriously affects human health (Syberg et al., 2015).

Previous studies on MPs have focused on environmental distribution (Keller et al., 2010; Rillig, 2012), toxicity and adsorption analyses (Fries, 2012; Hodson et al., 2017; Holmes et al., 2014; Zhou et al., 2015), but the understanding of MP changes and ageing

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11. Effects of biochar and organic substrates on biodegradation of polycyclic aromatic hydrocarbons and microbial community structure in PAHs-contaminated soils.

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Effects of biochar and organic substrates on biodegradation of polycyclic aromatic hydrocarbons and microbial community structure in PAHs-contaminated soils

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ABSTRACT

An incubation experiment was conducted to investigate whether combined amendment of biochar (B) and compost (CP), mushroom residue (M) and corn straw (Y) could enhance biodegradation of polycyclic aromatic hydrocarbons (PAHs) in contaminated soils. After 77 days of incubation, both B + M and B + Y significantly ($p < 0.01$) increased removal rate of PAHs compared with amendment of biochar alone. However, B + CP resulted in a significant ($p < 0.01$) decreasing of PAHs removal. Compared with no biochar and no organic substrates addition (CK) and B, both B + M and B + Y significantly ($p < 0.01$) enhanced concentrations of dissolved organic carbon (DOC) and were favorable for the microbial growth reflected by microbial biomass carbons (MBC) and emission of carbon dioxide. Redundancy analysis (RDA) indicated that B + CP, B + M and B + Y separated the bacterial community compared with CK and B. However, the community composition structure in B + CP was different from that of B + M and B + Y. Moreover, the abundance of some PAHs degraders and PAH degradation genes predicted by PICRUSt software was promoted by B + M or B + Y, whereas that was inhibited under B + CP. The present study suggested that both B + M and B + Y could accelerate biodegradation of PAHs mainly through increasing the concentration of DOC and the abundances of microbial PAH degraders in soils.

1. Introduction

Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous organic pollutants, which pose a great threat to human health through food chain (Liao et al., 2019). Due to their toxic, carcinogenic and mutagenic properties as well as frequent environmental occurrence, sixteen species of PAHs are included in the list of priority pollutants by European Union and the United States Environmental Protection Agency (Keith and Telliard, 1979; European Union, 2005). PAHs are mainly generated from human activity including the processes of coke production, petroleum refining and incomplete combustion or pyrolysis of organic materials and thus causing 1.4 % of soils in China were contaminated with PAHs (Johnsen et al., 2005; Department of Environmental Protection and Ministry of Land and Resources, 2014). Owing to their low water solubility, high hydrophobicity and being easily absorbed to

soil particles, PAHs are not easy to be degraded in soils (Ping et al., 2007). Therefore, a suitable remedial technology is needed to mitigate the possible environmental risk posed by PAHs in soils.

Adding biochar to soil can be considered as a means to improve soil quality (Song et al., 2019; Tang et al., 2013; Anyika et al., 2015). Use of biochar has been extended towards remediation of PAHs contaminated soils because it has high adsorptive capacity and it could enhance the biodegradation of PAHs by microbial stimulation (Beesley et al., 2010; Zhang et al., 2018). Wood based biochar was a good sink for pyrene in aqueous solution, with removal efficiency of more than 60 % (Wang et al., 2006). Zhu et al. (2018) indicated that pine needle biochar reduced the bioavailability of PAHs in soils through immobilization. A notable disadvantage for biochar amendment is that the amendment generally lead to reduction in biodegradation of PAHs as the adsorbed PAHs reduce their bioavailability for soil microbes and therefore cannot

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Facts to acidification-induced carbonate losses from Chinese croplands

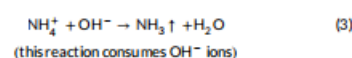
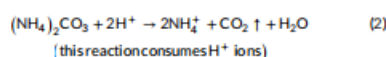
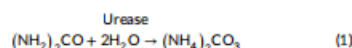
1 | INTRODUCTION

Recently, we raised the global problem of nitrogen (N)-induced soil acidification causing substantial carbonate losses and subsequent CO₂ emissions (Zamanian et al., 2018) and later reported facts based on ~35,000 soil profiles surveyed in Chinese croplands (Raza et al., 2020). In their Letter to the Editor, Guo and Chen (2021) argue that our results are overestimated due to some misconceptions related to the calculations. We value the opportunity to respond and are happy to clarify the robust findings and nature of the presented data as well as to further explain soil acidification mechanisms. We further stress that in addition to N-induced acidification, carbonate losses are driven by many other factors and processes and accelerate climate change and soil degradation globally.

2 | PROTON PRODUCTION IN SOIL

The first point raised by Guo and Chen (2021)—the overestimation of proton production in Raza et al. (2020)—was ambiguous, as Guo and Chen (2021) also claimed that we underestimated proton production because we ignored H⁺ addition through plant assimilation and ammonia volatilization in table 1 in Raza et al. (2020). Please note that table 1 in Raza et al. (2020) was focused solely on H⁺ production by nitrification of NH₄⁺ originating from fertilizers and N deposition. Nitrification occurs very quickly in well-aerated soils; the maximal nitrification rate is in soils with pH values between 8 and 8.5 (Cheng et al., 2004), which is 5–10 times faster than the rate in soils with a pH of 6–6.5 and lower. Consequently, most of the applied NH₄⁺ is nitrified within 3–5 days, leaving plants less opportunity to take up N in its original N form (NH₄⁺; Wan et al., 2009). Therefore, the H⁺ release by NH₄⁺ root uptake was low and hence was not considered. We agree with Guo and Chen (2021) that NH₃ volatilization releases H⁺ ions (or consumes OH⁻ ions), but these H⁺ ions are counterbalanced through H⁺ ion consumption during urea hydrolysis to 2NH₄⁺ (Equations 1 and 2). Because urea is the major N fertilizer applied in China (and in most other parts of the world) and its NH₃-loss pathway is chemically neutral (i.e., the H⁺ and OH⁻ production and consumption

are counterbalanced), we did not include NH₃ volatilization in our calculations (Equations 1–3).



Equation (1) presented in Guo and Chen (2021) is correct in principle but useless because the conversion of NO₃⁻ to NH₄⁺ in calcareous soils is nearly absent, especially in croplands. The sources of NO₃⁻ and NO₃⁻ (original notations in Guo & Chen, 2021) in soil usually do not uncouple spatially. From this point of view, figure 1 in Guo and Chen (2021) is not very useful.

Second, Guo and Chen (2021) questioned why we did not consider H⁺ consumption during nitrate uptake by roots and microbially driven denitrification. In calcareous soils, cation-anion balance by root uptake is mainly driven by the dominance of base cations. This means that H⁺ is not consumed during NO₃⁻ uptake; rather, it is (over)compensated by Ca²⁺ and K⁺ uptake. The over-compensated base cations are then balanced by the release of H⁺. Therefore, NO₃⁻ uptake in calcareous soils does not consume H⁺ ions; rather, its uptake causes less H⁺ release. As discussed above, calcareous soils generally have good aerobic conditions that do not favor denitrification, which means that the contribution of H⁺ consumption through denitrification would be minimal (dashed line in Figure 1) and therefore was not considered in the calculations.

Guo and Chen (2021) claimed that H⁺ release depends on the proportion of leached nitrate, which accounts for approximately 25% of the applied N in double-cropping cereal systems (Guo et al., 2010); therefore, 1.0 molar urea should produce only 0.5 moles of H⁺, rather than the 2.0 moles assumed in table 1 of Raza et al. (2020). We assume that this is a misunderstanding by Guo and Chen (2021), as we clearly stated that acidification induced by N was calculated after excluding N uptake by plants and ammonia volatilization (page 5, equations 5 and 6 in Raza et al., 2020). Therefore, only approximately 55% of the applied N fertilizers contributed to acidification, which means that 1.0 molar urea produced approximately 1.0 moles of H⁺ ions, not 2.0 moles,

This article is a Response to the Letter by Guo and Chen, 27,957–958 about the article by Raza et al., 26,3738–3751.

13.Co-transport of ball - milled biochar and Cd²⁺ in saturated porous media.

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Co-transport of ball-milled biochar and Cd²⁺ in saturated porous media

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ABSTRACT

The combination of ball milling technology and biochar materials provides new prospects for environmentally friendly and sustainable environmental pollution control technologies, but comes with opportunities and risks. In this study, column experiments were used to evaluate the environmental behavior of ball-milled biochar (BMBC). The results of the column experiments showed that BMBC transport increased with a high flow velocity, large medium size, high pH, and low ionic strength. Owing to the strong adsorption of Cd²⁺ by BMBC, the presence of BMBC in the medium led to a decrease in effluent Cd²⁺. The presence of Cd²⁺ in the solution slightly inhibited the transport of BMBC. The transport of Cd²⁺ was facilitated by BMBC due to the high affinity. Therefore, attention should be paid to favorable conditions for BMBC transport. This study provides a perspective to assess the behavior of BMBC in the environment and whether its interaction with Cd²⁺ will introduce new environmental hazards.

1. Introduction

Recent years have witnessed the development and prosperity of biochar. The main reason is the pristine biomass of biochar has a wide variety of sources and low costs, and produces a loose porous structure and a large number of O-containing functional groups in the pyrolysis process, which make biochar a material with high cost-effectiveness and wide application (Lehmann et al., 2011; Cheng et al., 2016; Pandey et al., 2020; Chen et al., 2019; Kwon et al., 2020). For instance, biochar plays an important role in soil remediation because of its large specific surface area, pore volume and abundant surface functional groups. Adding biochar to soil can increase the heavy metals adsorption capacity of soil (Ahmad et al., 2014). However, the potential of biochar has not been fully explored, various modified biochar emerged (Wang and Wang, 2019; Ahmed et al., 2016). With an increasing focus on ball milling technology and biochar materials, research on ball-milled biochar (BMBC) is increasing (Peterson et al., 2012; Naghdi et al., 2017; Lyu et al., 2018a, 2018b; Wang et al., 2018b). Ball milling, which is an environmentally friendly and sustainable technology, can maximize the application potential of the materials (Lyu et al., 2018a, 2018b; Wang et al., 2018b; Baláz, 2018; Delogu et al., 2017). The heavy metal adsorption performance of biochar is improved through the ball milling

process (Lyu et al., 2017, 2018a; Wang et al., 2018a). However, existing studies are focus on removing heavy metals from aqueous solutions, less on the interactions and cotransport behaviors of BMBC and heavy metals.

The highly toxic metal cadmium is detrimental to living organisms and is mainly transported with water as divalent ions (Cd²⁺) (Zhang et al., 2020; Singh et al., 2018). Comparing to other heavy metals, Cd²⁺ is more soluble and mobile so that it is very toxic even in low concentrations (Hussain et al., 2021). A decade ago, solute transport was the main topic on Cd²⁺ transport, and the studies have suggested solution pH, medium surface properties, ion-pair formation and organic matter have critical influence on Cd²⁺ transport (Kubier et al., 2019; Chen et al., 2019; Zhang et al., 2021). Nowadays, more researches have realized that Cd²⁺ could easily combine with a large amount of inorganic and organic ligands, suspended solids, aquatic plants and underwater sediments in water to be converted into complex and insoluble suspensions, and thereby influencing the fate and transport of Cd²⁺ (Wang et al., 2017, 2018a; Kubier et al., 2019). In the case of natural or artificial particles which have strong affinity for Cd²⁺, it could facilitated the transport of Cd²⁺ by carrying or reactivating (Jiang et al., 2018; Li et al., 2019; Xie et al., 2018). After ball milling, the enhancement of Cd²⁺ adsorption capacity of biochar is induced by the increase of specific surface area and

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14. Negative effects of oxytetracycline and copper on nitrogen metabolism in an aerobic fermentation system: Characteristics and mechanisms

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Negative effects of oxytetracycline and copper on nitrogen metabolism in an aerobic fermentation system: Characteristics and mechanisms

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ABSTRACT

Aerobic fermentation is a sustainable option for livestock waste treatment, but little is known about the microbial mechanism that allows oxytetracycline (OTC) and copper (Cu) to affect nitrogen metabolism during aerobic fermentation. In this study, contamination with OTC and Cu alone or in combination reduced the total nitrogen (TN) content of the fermentation products. Metagenomic analysis demonstrated that the contribution of microorganisms to nitrogen metabolism changed significantly in different stages of fermentation. OTC and Cu affected the formation and utilization pattern of NO_2^- -N by microorganisms, which were mainly responsible for the reduced N_2O emissions. In the presence of OTC and/or Cu, *Myxococcus stipitatus*, *Myxococcus xanthus*, and *Gimella* were evidently enriched at the end of fermentation, and their increased roles in the dissimilatory reduction of nitrite to ammonium were confirmed by network analysis. *Ardenitobacter maritima* was the main contributor to denitrification (NO_2^- -N to NO). Furthermore, organic matter (OM) was the most important factor responsible for driving the variation in nitrogen-transforming microorganisms and controlling denitrification. OTC affected the formation of OM, which can directly affect TN ($\lambda = -0.37$, $p < 0.001$), and the adverse impact of Cu on *nirK*- and *nirH*-dominant microorganisms was validated ($p < 0.05$).

1. Introduction

Aerobic fermentation is regarded as an important component of sustainable development because it can reduce the environmental problems caused by organic waste, and fermentation products can replace chemical fertilizers to promote the development of circular agriculture (Cáceres et al., 2018; Janczak et al., 2017). However, antibiotics and heavy metals have important roles in modern intensive agriculture, where they are used as important additives for curing and preventing animal diseases, and promoting animal growth (Liu et al., 2018; Wang et al., 2013). China is the world's largest producer and consumer of antibiotics. In 2013, China used 162,000 tons of antibiotics and the antibiotics consumed by animals accounted for about 52.0% of the total antibiotics (Zhang et al., 2015). Among the 36 commonly used antibiotics, veterinary antibiotics accounted for 84.3% (pigs: 52.2%) (Zhang et al., 2015). Oxytetracycline (OTC) is a tetracycline antibiotic with broad spectrum antibacterial properties and it is used extensively used to control porcine bacterial diseases (Mou et al., 2019). However,

large amounts of antibiotics are excreted in animal feces due to the malabsorption of veterinary antibiotics, where the antibiotic concentrations in livestock feces range between 1–10 mg/kg (Liu et al., 2018; Massé et al., 2014). A previous study showed that the average OTC content in Chinese swine manure was 9.1 mg/kg (Zhang et al., 2005). In addition, trace elements can promote the growth of livestock and poultry. The average copper (Cu) content in pig feed is 82.0 mg/kg (Wang et al., 2013). Animals have a low absorption rate for heavy metals, and thus the Cu contents of livestock and poultry manure are 1.0–4.4 times that found in feed (Cang et al., 2004). Ji et al. (2012) showed that the Cu content of livestock and poultry feces could reach 730.1 mg/kg. However, the residual antibiotics and heavy metals in animal excrement will inevitably affect the microbial community structure and disrupt the normal operation of the fermentation system.

Nitrogen is a vital element that supports microbial metabolism and a key factor responsible for the efficiency of fermented products as fertilizers (Janczak et al., 2017; Ren et al., 2020). The losses of nitrogen during aerobic fermentation occur mainly through NH_3 and N_2O

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15. Rethinking application of animal manure for wheat production in China

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Rethinking application of animal manure for wheat production in China

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ABSTRACT

The application of animal manure contributes greatly to improving soil fertility and maintaining/increasing wheat yield; however, it is rarely used in China's wheat production. This distortion emphasizes the importance of comprehensive analysis of manure use from theoretical and practical perspectives. A meta-analysis on China's wheat production was therefore conducted to quantify the effects of animal manure applications (SNM: substituting chemical N fertilizer by manure under the same total N input; AMCF: additional manure based on the same chemical fertilizer) on wheat productivity, environmental costs, and economic profits, and a large-scale farmer survey was performed to explore the reasons for the low manure-use rate. Overall, soil organic carbon (SOC) content in SNM and AMCF increased by 21% and 32%, respectively, relative to using chemical fertilizer alone (control). For SNM, yield increased by 5–8% when chemical N fertilizer was substituted with manure at <15% and 15–30%. For AMCF, yield increased by 14% with a 69% increase in total N input. NH_3 volatilization and NO_3^- residual at wheat harvest in SNM reduced by 24% and 21%, respectively, but N_2O emissions and estimated GHG emissions increased by 41% and 14%, respectively. NH_3 volatilization, N_2O emissions, NO_3^- residue, and estimated GHG emissions in AMCF increased by 12–50%. There was no impact to net ecosystem economic benefit (NEEB) when using pig manure and chicken manure, while the NEEB associated with SNM and AMCF reduced by 13–74% when using cow manure and commercial manure. Although applying manure has the capability to increase SOC and yield, only 1% of N comes from manure in wheat production, which mainly results from low economic profits. Policies and investment incentives that increase economic profits and minimize environmental costs will be crucial to facilitating the widespread use of manure.

1. Introduction

Sustainably feeding the growing population is a considerable challenge facing agriculture (Zhang et al., 2016). Chemical fertilizer is a prerequisite for contemporary high-yielding agriculture, and it supports the production of more than half of the global food production (Ladha et al., 2016). However, because of the high or excessive use of chemical fertilizer in recent years, China's agriculture is facing unprecedented challenges and risks from loss of biodiversity, degradation of land, and pollution of fresh water (Chen et al., 2014a). The application of animal manure to farmland is considered a key strategy for addressing food production and environmental protection issues synergistically. In general, animal manure applications included two approaches: substituting chemical nitrogen (N) fertilizer with manure under the same total N input (SNM) and adding manure based on the same

chemical fertilizer (AMCF). It is usually believed that using SNM and AMCF could increase crop productivity because applying animal manure not only provided macronutrients that were otherwise provided by chemical fertilizers but also supplied micronutrients (Yan and Gong, 2010). Indeed, using pig manure instead of 50% chemical N fertilizer increased wheat yield by 4–24% in North China Plain (Zhao et al., 2016). However, replacing 50% chemical N fertilizer with pig or chicken manure had no significant effect on maize yield in Northeast Plateau (Chen et al., 2014b). Replacing 50% chemical N fertilizer with cow manure even reduced wheat yield by 14–20% in North China Plain (Sun et al., 2013). The variation in yield may be caused by the application methods of manure, climates, soil properties, cropping systems, and duration years (Zhang et al., 2019). Field studies that conducted under specific natural conditions at a single point or multiple points provided detailed information, but they did not allow broad judgments about the

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16. Transport of different microplastics in porous media: Effect of the adhesion of surfactants on microplastics

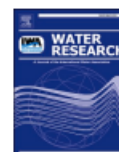
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Transport of different microplastics in porous media: Effect of the adhesion of surfactants on microplastics

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ABSTRACT

The adhesion of surfactant molecules on the microplastics surface is affected by the surface structure of the microplastics. Little is known about the mobility of different microplastics in the medium under surfactants. In order to reveal the migration of different microplastics under the action of surfactants, the study selected five kinds of microplastics (polyethylene (PE), polypropylene (PP), polystyrene (PS), polytetrafluoroethylene (PTFE), polymethyl methacrylate (PMMA)) and two kinds of surfactants (cetyltrimethylammonium bromide, CTAB and sodium dodecyl benzene sulfonate, SDBS) as the research objects. The column experiment was used to explore the transport behavior of microplastics under different concentrations of surfactants and the convection dispersion model was used to simulate. The dynamic contact angle of the surfactant solution on the microplastics was measured and the adhesion work was calculated by the Young-Dupre equation to reveal the underlying mechanism of microplastics retention in the presence of surfactants. The results showed that the transport ability of microplastics followed the order of PTFE < PMMA < PS < PE < PP, and the mobility under high concentrations of surfactants was greater than that at low concentrations, which was mainly attributed to the difference in the adhesion of the surfactant on the surface of the microplastics, which lead to differences in the migration between the microplastics. When the microplastics were close to each other, if the reaction force of the electrostatic force was greater than the adhesion force of the surfactant molecules on the surface, the surfactant molecules would be separated from the microplastics and the stability of the microplastics would decrease. In addition, the migration ability of microplastics in anionic surfactants was weaker than that of cationic surfactants, because the osmotic and elastic repulsion produced by SDBS were weaker than CTAB. The research results were of great significance for understanding the environmental behavior of microplastics affected by surfactants, and objectively evaluating the transport and fate behavior of microplastics-surfactants in the environment.

1. Introduction

Recently, new pollutants-microplastics have attracted more and more attention. However, microplastics often have low mobility in the subsurface due to the extremely strong hydrophobicity of microplastics. Current research mostly focuses on exploring the effects of the aging process of microplastics on themselves and environmental pollutants (Lang et al., 2020; Ren et al., 2021; Zhou et al., 2021). Surfactants are an important class of organic compounds, which have been used directly or indirectly in the production of all man-made objects that we come into

contact with in our daily lives (Szymczyk et al., 2014b). Therefore, lakes, rivers, soils and other environments are flooded with a large amount of waste water containing surfactants. When surfactant molecules exist in the environment, the surfactant can be adsorbed on the surface of the microplastic by van der Waals force and the hydrophobic force between the hydrophobic tail of the surfactant and the non-polar structure of the microplastic surface, then the hydrophilic part is exposed to the environment, resulting in a decrease in the hydrophobicity of the microplastic surface (Xia et al., 2020). This means that the combination of microplastics and surfactants can make microplastics migrate to the

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17. Selenium uptake and accumulation in winter wheat as affected by level of phosphate application and arbuscular mycorrhizal fungi.

Journal of Hazardous Materials 433 (2022) 128762



Contents lists available at ScienceDirect

Journal of Hazardous Materials

journal homepage: www.elsevier.com/locate/jhazmat



Selenium uptake and accumulation in winter wheat as affected by level of phosphate application and arbuscular mycorrhizal fungi

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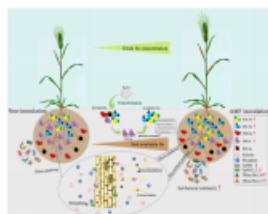
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HIGHLIGHTS

- *F.m* significantly improved grain Se concentration under low level of phosphate.
- AMF significantly up-regulated the expression of *TR1ae;Pht1;10* and *TR1ae;Pht1;11*.
- *Proteobacteria*, *Bacteroidetes*, *Actinobacteria* and *Firmicutes* were key for oxidation of OM-Se.

GRAPHICAL ABSTRACT



ARTICLE INFO

Editor: Dr. G. Echevarria

Keywords:

Arbuscular mycorrhizal fungi
Se uptake
Bacterial community
Phosphate transporter
Winter wheat

ABSTRACT

Selenium (Se) is an advantageous element to crops. However, the influence of arbuscular mycorrhizal fungi (AMF), phosphate (P) and selenite in soil on Se uptake by winter wheat remain elusive. Pot trials were carried out including seven levels of P (0, 12.5, 25, 50, 100, 200 or 400 mg kg⁻¹) and non-mycorrhizal inoculation (NM), inoculation of *Funneliformis mosseae* (*F.m*) or *Glomus versiforme* (*G.v*). The present results found that grain phosphorus concentration increased with increase of P level from 0 to 100 mg kg⁻¹ and then tended to plateau, while grain Se concentration decreased with the level of P from 0 to 400 mg kg⁻¹. Based on mathematical modeling, inoculation of *F.m* or *G.v* dramatically improved grain Se concentration by 16.90% or 12.53% under the lower level of P (48.76 mg kg⁻¹). Furthermore, partial least squares path modeling (PLS-PM) identified that both up-regulated of the expression of AMF-inducible phosphate transporter and improved Se bioavailability in rhizosphere soil contributed to enhancing plant Se concentration under P levels ≤ 100 mg kg⁻¹. The present study demonstrated that AMF combined with 48.76 mg kg⁻¹ P applied in soil can not only achieve high grain yield, but also fully exploit the biological potential of Se uptake in wheat.

Abbreviation: Se, Selenium; P, Phosphate; AMF, Arbuscular mycorrhizal fungi; NM, Non-mycorrhizal inoculation; *F.m*, *Funneliformis mosseae*; *G.v*, *Glomus versiforme*; AP, Available phosphorus; ALP, Alkaline phosphatase activity; qRT-PCR, Real time quantitative PCR; PUE, Phosphorus use efficiency; RA, Relative abundance; PLS-PM, Partial least squares path modeling; EXC-Se, Exchangeable and carbonate-bound Se; SOL-Se, Soluble Se; OM-Se, Organic matter-bound Se; FMO-Se, Fe/Mn oxide-bound Se; RES-Se, Residual Se.

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18.Underlying mechanisms of promoted formation of haloacetic acids disinfection byproducts after indometacin degradation by non-thermal discharge plasma

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Underlying mechanisms of promoted formation of haloacetic acids disinfection byproducts after indometacin degradation by non-thermal discharge plasma

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ARTICLE INFO

Keywords

Indometacin degradation
Non-thermal discharge plasma
Disinfection byproducts
Haloacetic acids formation

ABSTRACT

Indometacin (IDM), as a kind of non-steroidal anti-inflammatory drugs, has ecological and health risks, which is the potential precursor of chlorination disinfection byproducts (DBPs). Non-thermal discharge plasma was attempted to eliminate IDM and control subsequent DBPs formation. Satisfactory removal performance for IDM was realized by the plasma oxidation; almost 100% of IDM was removed within 2 min. Relatively greater removal efficiency was gained at a higher plasma voltage and a lower pH level. Electron paramagnetic resonance spectrometer revealed that reactive species $\cdot\text{OH}$, $\text{O}_2^{\cdot-}$, and $^1\text{O}_2$ were responsible for IDM decomposition. Based on analyses of Fourier transform infrared spectroscopy, two-dimensional correlation spectroscopy, three-dimensional fluorescence spectrum, and gas chromatography-mass spectrometer, attacks of reactive species resulted in sequence breakages in functional groups of IDM, leading to production of small molecular alcohols, acids, and amines. Possible decomposition pathways of IDM were proposed. The produced acetamide and 1H-indol-5-ol were important precursors of DBPs. Formation and toxicity of nitrogen-containing DBPs were dramatically inhibited after IDM degradation; however, those of haloacetic acids were strengthened. The relevant roadmaps among DBPs and degradation intermediates were figured out. This study revealed the underlying mechanisms of IDM degradation by discharge plasma and its potential risks in chlorination disinfection.

1. Introduction

Pharmaceuticals and personal care products (PPCPs) are complex burgeoning organic micropollutants, which are widely used in daily life and particularly discharged from personal hygiene products, cosmetic and medicinal products (Wu et al., 2020; Chen et al., 2021). PPCPs are widely detected in rivers and lakes around the world with concentrations ranging from ng L^{-1} to $\mu\text{g L}^{-1}$ (Kostich et al., 2014; Katsikaros and Chrysikopoulos, 2021). Numerous PPCPs are considered as endocrine-disrupting compounds, which can bring potential risks to human health and ecological environment (Caldas et al., 2019; Krishnan et al., 2021). Previous study reported that PPCPs exposure induced organ damage and metabolic dysfunction in zebrafish (Hamid et al., 2021). Due to their widespread application and risks on

ecosystems and humans, PPCPs have attracted great attention in recent years (Schwaiger et al., 2004; Evgenidou et al., 2015; Yang et al., 2017).

Indometacin (IDM) is a typical class of non-steroidal anti-inflammatory drugs, and it is usually used to relieve pain and inflammation for human or animal health in medicine (Shao et al., 2020). IDM can easily be purchased over-the-counter, making it become one of the most abused drugs (Zheng et al., 2020). Undoubtedly, a large amount of residual IDM will be eventually discharged into the water environment. Approximately $5\text{--}792 \text{ ng L}^{-1}$ IDM was detected in surface water in the UK and Ireland (Zhang et al., 2018). Long-term exposure to IDM induces damages to digestive, central nervous, urinary and hematopoietic systems (Chiemezie and Olusegun, 2018). Majeed et al. (2018) reported that IDM had the acute toxicity in rabbits. Moreover, chlorinated aromatic hydrocarbons and nitrogen-containing disinfection byproducts

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19. Facet-dependent photo-degradation of nitro polycyclic aromatic hydrocarbons on hematite under visible light: Participation of environmentally persistent free radicals and reactive oxygen/nitrogen species

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journal homepage: www.elsevier.com/locate/apcatb



Facet-dependent photo-degradation of nitro polycyclic aromatic hydrocarbons on hematite under visible light: Participation of environmentally persistent free radicals and reactive oxygen/nitrogen species

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ARTICLE INFO

Keywords:

Hematite
Crystal plane
Nitro polycyclic aromatic hydrocarbons (NPAHs)
Environmentally persistent free radicals (EPFRs)
Reactive oxygen/nitrogen species (RO/NS)

ABSTRACT

In this work, we systematically explored the interfacial interactions between various NPAHs and hematite exposed with different facets under visible light. The results suggest that hematite nanocube (HNC) exhibited higher degradation rate for NPAHs, due to the greater number of electron accepting sites and reactive oxygen species (ROS). Notably, there are significant differences in the degradation pathways of various NPAHs. Environmentally persistent free radicals (EPFRs) were observed during the degradation of 9-nitroanthracene and 1-nitropyrene on hematite. The spin densities on HNC were higher than that on hematite nanoplate (HNP). Periodic density functional theory (DFT) calculations indicated that the binding of radical intermediates on HNC is more favored than that on HNP. Meanwhile, NPAHs degradation was also accompanied by the production of various ROS and reactive nitrogen species (RNS). Overall, our findings provide theoretical guidance for the removal of NPAHs and the application of hematite photocatalysts for environmental remediation.

1. Introduction

Polycyclic aromatic hydrocarbons (PAHs) are classified as priority pollutants by the US Environmental Protection Agency due to their negative effects to human health and ecology [1]. However, PAHs are not the only polycyclic aromatic compounds of concern in contaminated environments. Nitro polycyclic aromatic hydrocarbons (NPAHs), as common derivatives of PAHs, is widely detected in natural phases, such as Superfund sites and atmospheric particulate matters [2–4]. NPAHs usually have higher toxicity, polarity and mobility than their parent PAHs [5,6], and therefore great concerns have been raised on the removal of NPAHs in environment.

Organic pollutants adsorbed on the upper soil layer and particulate matters readily undergo abiotic reactions, especially photo-induced transformation [7,8]. The photo-degradation of PAHs and NPAHs is highly correlated to solid active components, such as humic substances, clay minerals, and metal oxides under light irradiation [9–13]. Significantly, the interaction between PAHs and inorganic minerals (such as

Fe₂O₃, TiO₂, clay, Al₂O₃) triggers the generation of free organic radicals through electron transfer process, and these radical intermediates can be stabilized on the mineral surface, inducing the formation of environmentally persistent free radicals (EPFRs) [10,11,14,15]. Due to its potential damage to heart, lung and respiratory systems, EPFRs are considered as a class of emerging pollutant [16,17]. Unfavorable health conditions may be related to the EPFRs-promoted formation of reactive oxygen species (ROS), such as hydroxyl radical (•OH), superoxide radical (•O₂⁻), hydrogen peroxide (H₂O₂) and semiquinones [18–20]. Progress has been further made to probe the relationship between EPFRs concentration and mineral properties, such as particle size and components. Comparatively, only limited studies have been carried out to understand the transformation rate and pathway of NPAHs with different molecular properties on the mineral surfaces. In addition, the formation of radical intermediates and reactive species (RS) during NPAHs transformation is not well understood.

As a crucial component of natural minerals, transition metal-containing oxide/hydroxides, especially iron oxides, play a pivotal

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Resources, Conservation & Recycling

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Comprehensive nitrogen management techniques for wheat self-sufficiency in China

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ARTICLE INFO

Keywords:

Food security
N use efficiency
Grain yield
N losses
Economic benefits
Life cycle assessment

ABSTRACT

China consumes 28% of the world's N fertilizer and produces 17% of global wheat, and is currently self-sufficient. At issue is whether it will remain self-sufficient with the increases in wheat demand and the decreases in fertilizer N usage and harvested area. Here we quantified the detailed benefits of N management technique for wheat production and predicted the potential of China's wheat production in 2030 based on large-scale farmer surveys and N management technique. Results showed that applying individual N management techniques increased wheat yield by 3–11%, reduced greenhouse gas (GHG) emissions by 1–39%, and increased net ecosystem economic budget (NEEB) by 1–17%. Applying comprehensive N management techniques (combining optimized N rate with agronomic measures) showed better benefits. The findings of large-scale farmer survey showed that the national average (range at the county scale) wheat yield and N application rate was 5.7 (1.7 to 8.2) t ha⁻¹ and 210 (32 to 398) kg N ha⁻¹, respectively. The huge variations provided an opportunity to further improve the national wheat production. Scenario analysis indicated that applying comprehensive N management techniques increased wheat production by 7% (9 Mt), reduced GHG emissions by 17% (15 Mt CO₂ eq.), and increased NEEB by 9% (US\$ 3 Billion). Such improvements are critical for China's response to the multiple challenges from food demand, environmental protection, and farmers' livelihoods. These insights on N fertilizer management and sustainable wheat production have important implications for countries and regions facing the dilemma of N management.

1. Introduction

The great pressure from food demand forces the Chinese government to make strategic decisions to ensure food security of 1.4 billion people, and those decisions will bring a great effect on global agricultural development. Wheat (*Triticum aestivum* L.) is a staple food crop, with global annual production of 766 Mt, of which 17% comes from China, and China's wheat production is currently self-sufficient (FAO, 2020). N is the most vital nutrient limiting crop yield in the world, and N fertilizer feeds 44% of the world's population (Erisman et al., 2008). The imbalance in the spatial distribution of N fertilizer has severely restricted global crop production and threatened the sustainable development of agriculture (Mueller et al., 2014). Agricultural N fertilizer consumption in China reached 28.3 Mt N yr⁻¹ in 2018,

accounting for 28% of the global total, exceeding its 'sustainable' level and posing a threat to the environment and human health (Chen et al., 2014; Griffis and Baker, 2020). The Ministry of Agriculture and Rural Affairs of China announced the "Zero Increase Action Plan" in 2015, calling on people to use N fertilizer efficiently (Lu and Tian, 2017). Most importantly, the total wheat demand must increase by 6.8% by 2030 due to the increase in rations and industrial consumption (NBSC, 2020a); however, the harvested area will decrease by 4.6% due to the pressure of urbanization and land appropriation for mining. China's wheat production is therefore facing the huge challenge to meet the growing demand with less N fertilizer and less harvested area by 2030.

Owing to the steadfast policy support and the tremendous investment, many N fertilizer management techniques have been developed to increase crop yields more effectively. In general, these techniques can be

; GHG, Greenhouse Gas; GWP, Global Warming Potential; NEEB, Net Ecosystem Economic Budget; NH₃, Ammonia; N₂O, Nitrous Oxide; NO₃⁻, Nitrate; Nr, Reactive Nitrogen; NUE, Nitrogen Use Efficiency; SNM, Substituting Part Of Chemical N Fertilizer By Manure.

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六、毕业研究生创业情况

- (1) 新华社对土壤学专业创业学生姜义亮的报道；
- (2) 姜义亮的“土壤改良与修复项目”参加央视《创业英雄汇》，获得 500 万人民币融资；
- (3) 中央电视台对李克强总理市场姜义亮创业项目的报道；
- (4) 凤凰网对姜义亮创业项目的报道。

这个医生，最喜欢开“土”方子

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往期	片段
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	《创业英雄汇》 20170203 2016中国创业 榜样

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我叫姜义亮

85后“土博士”

我是西北农林科技大学的一名

从本科到博士

10多年来一直在和土壤打交道

我觉得这些问题土壤

应该像病人一样

得到医生的治疗和修复

何不创业当个土壤医生

于是一个

涵盖土壤检测 改良 修复

和水土保持等方面的

博士技术团队成立了

嗯 我是非常想

把我们所学的

土壤相关的任何知识

把这个技术做出来

提供一个技术的服务



李克强总理视察《创业英雄汇》选手姜义亮及其创业项目

CCTV-2财经频道 创业英雄汇 来源：央视网 2017年07月13日 10:55

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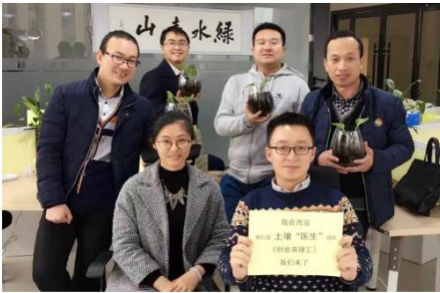
2017年7月10日上午，中共中央政治局常委、国务院总理李克强考察陕西杨凌农业高新技术产业示范区。考察期间总理视察了土壤改良修复技术服务项目团队，并听取项目创始人姜义亮的汇报。姜义亮曾经带着土壤改良修复技术服务项目于2017年2月10日登上央视《创业英雄汇》舞台。

贫瘠土地穿绿衣，英雄汇助推创业者

2017年2月10日，姜义亮带着他的土壤改良修复技术服务项目登上《创业英雄汇》的舞台，在节目录制现场得到了助战团嘉宾和投资人的的一致好评。土壤改良修复服务项目针对不同类型土壤采用因地制宜和测土配方的综合整治手段，并且在土壤改良的实施过程中，有针对性地选择人工合成改良剂或天然土壤改良剂，改善贫瘠土壤的营养状况，提高土地产量。

投资人现场上台吃土、观众品尝改良后土壤种植的农作物，现场一度热闹非凡。

节目播出5个月内，姜义亮团队一共收到政府、企业及个人咨询达150余次，这期间落地项目已经覆盖山东、河北、浙江及甘肃等10多个省份，其中在山东和河北即将签约的项目金额均超过百万。



青山绿水，指日可待

目前，我国部分地区土壤污染较重，耕地土壤环境质量堪忧，工矿业废弃地土壤环境问题突出。

在与克强总理的交流中姜义亮说：“针对土壤板结、酸化、土壤盐碱化以及其他障碍性土壤问题，我们都可以通过一定的土壤改良技术手段进行缓解和解决。”

总理认真听取了姜义亮团队的汇报后，提出“将土壤深翻政策与植物修复技术相结合”的思路，勉励他们继续开展土壤相关技术的研究及推广应用，为国家农业环保做出贡献！

总理寄语：让农业插上翅膀，飞向全国，走向世界！



姜义亮向克强总理汇报了土壤改良修复技术服务项目进展。



姜义亮：“土”博士的青山绿水梦

2020年08月19日 11:33

来源：凤凰网陕西综合

0人参与

0评论



姜义亮

在追梦的路上，要始终相信光明和希望总是降临在那些真心相信梦想一定会成真的人身上。1987年出生的姜义亮就是这样一个执着梦想并深耕于梦想的85后。

2016年，姜义亮将十余年所学的土壤相关知识和技术通过实践转化，创办了杨凌锦华生态技术有限公司。他的“土壤改良与修复技术服务”项目收到不少投资人的青睐，目前已经获得融资累计500万元。中央电视台、新华社、中国日报等30余家媒体均对其创业项目进行报道。