浙江省科学技术奖公示信息表

提名奖项：科学技术进步奖

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| 成果名称 | 高强度大功率空化关键技术及其绿色创新应用 |
| 提名等级 | 二等奖 |
| 提名书  相关内容 | 1.主要知识产权目录：  （1）发明专利：一种改善剩余污泥脱水性能的方法，ZL201610976644.3  （2）发明专利：超声波工具头，ZL2**201210538862.0**  **（3）发明专利：**将基于振幅控制的超声波设备用于化工装置的三步式方法，ZL 201610152950.5  （4）**发明专利：**一种有负载情况下测定功率超声设备输出振幅的方法，ZL 201410288598.9  2.代表性论文专著目录：  [1] Meiqiang Cai\*, Qian Wang, George Wells, Dionysios D.Dionysiou, Zhijun Song, Micong Jin,Jianqiang. Improving dewaterability and filterability of waste activated sludge by electrochemical Fenton pretreatment, Chemical Engineering Journal, 2019, 362: 525-536  [2] Mei Qiang Cai，Jianqiang [Hu](https://xueshu.baidu.com/s?wd=author:(Hu)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Wells](https://xueshu.baidu.com/s?wd=author:(Wells) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [George](https://xueshu.baidu.com/s?wd=author:(George)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Seo](https://xueshu.baidu.com/s?wd=author:(Seo) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Youngwoo](https://xueshu.baidu.com/s?wd=author:(Youngwoo)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Spinney](https://xueshu.baidu.com/s?wd=author:(Spinney) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Richard](https://xueshu.baidu.com/s?wd=author:(Richard)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Ho](https://xueshu.baidu.com/s?wd=author:(Ho) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Shih-Hsin](https://xueshu.baidu.com/s?wd=author:(Shih-Hsin)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Dionysiou](https://xueshu.baidu.com/s?wd=author:(Dionysiou) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Dionysios](https://xueshu.baidu.com/s?wd=author:(Dionysios)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[D.](https://xueshu.baidu.com/s?wd=author:(D.) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank)，[Jie](https://xueshu.baidu.com/s?wd=author:(Jie) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Su](https://xueshu.baidu.com/s?wd=author:(Su)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)，[Ruiyang](https://xueshu.baidu.com/s?wd=author:(Ruiyang) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Xiao](https://xueshu.baidu.com/s?wd=author:(Xiao)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)\*，[Zongsu](https://xueshu.baidu.com/s?wd=author:(Zongsu) Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person" \t "https://xueshu.baidu.com/usercenter/paper/_blank) [Wei](https://xueshu.baidu.com/s?wd=author:(Wei)%20Ohio&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=person)\*. Understanding Mechanisms of Synergy between Acidification and Ultrasound Treatments for Activated Sludge Dewatering: From Bench to Pilot–Scale Investigation/[Environmental Science & Technology](https://xueshu.baidu.com/usercenter/data/journal?cmd=jump&tn=SE_baiduxueshu_c1gjeupa&ie=utf-8&sc_f_para=sc_hilight=publish&sort=sc_cited&wd=journaluri:()%20Environmental%20Science%20&%20Technology%20Es%20&%20T). 2018,52(7):4313-4223.  [3] Meiqiang Cai, Micong Jin\*, Linda K. Weavers. Analysis of sonolytic degradation products of azo dye Orange G using liquid chromatography–diode array detectionmass spectrometry /Ultrasonics Sonochemistry. 2011, 18 (1): 1068-1076.  [4] Meiqiang Cai, Jie Su, Yizu Zhu, Xiaoqing Wei, Micong Jin\*, Haojie Zhang, Chunying Dong\*, Zongsu Wei. Decolorization of azo dyes Orange G using hydrodynamic cavitation coupled with heterogeneous Fenton process/Ultrasonics Sonochemistry. 2016,28(1):302-310  [5] Meiqiang Cai, Jie Su, Guanghu Lian, Xiaoqin Wei, Chunying Dong\*, Haojie Zhang, Micong Jin\*, Zongsu Wei. Sono-advanced Fenton decolorization of azo dye Orange G: Analysis of synergistic effect and mechanisms, Ultrasonics Sonochemistry.2016,31(7): 193-200  [6] Meiqiang Cai\*, Xiaoqin Wei, Micong Jin\*. Decolorization of azo dye Orange G by aluminum powder enhanced by ultrasonic irradiation/Ultrasonics Sonochemistry. 2015, 22,167-173 |
| 主要完成人 | 蔡美强，排名1，教授，浙江工商大学；  陈元平，排名2，高工，杭州成功超声设备有限公司；  金米聪，排名3，研究员，宁波市疾病预防控制中心  董春颖，排名4，副教授，浙江工商大学  陈 川，排名5，高工，杭州成功超声设备有限公司  杨 璞，排名6，高工，杭州成功超声设备有限公司  宋志军，排名7，教授，浙江工商大学  施跃锦，排名8，教授，浙江工商大学 |
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| 提名单位 | 浙江省教育厅 |
| 提名意见 | 项目突破了绿色智能大功率超声空化设备被国外企业垄断的瓶颈技术，研制了一系列不同功能的大功率聚焦式空化超声设备，创建了空化强化协同高级氧化的绿色降解关键技术及大功率空化强化污泥脱水关键技术。项目成果经浙江省技术市场促进会组织专家鉴定，鉴定委员会认为项目成果在大功率聚焦式超声系统研制、超声空化强化降解以及绿色制备方面具有显著创新性，达到国际先进水平。项目共在高质量期刊发表论文21篇，获授权发明专利15件和实用新型专利17件；近3年，项目完成单位和6家主要应用单位共累计新增销售收入31160万元，新增利润8187.84万元，新增税收3945.万元，出口创汇32.51万美元。成果在60多家企业推广应用，经济和社会效益显著。  经审查，该项目符合申报要求，同意提名该成果科学技术进步奖二等奖。 |