

WATER QUALITY SENSING TECHNOLOGY BASED ON ELECTROACTIVE BACTERIA

基于电活性细菌的水质传感技术

Speaker

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Abstract

随着大数据和人工智能技术的快速发展，对在线水质传感的需求日趋迫切。当前主流的水质传感技术均基于物理或化学原理。然而为了描述与生物相关的水质特性，例如生化需氧量（BOD）或生物毒性，就需要研发水质生物传感器。目前工业界在离线生物传感领域已有产品（如发光细菌、压差法BOD等），但在线水质生物传感技术依然需要深入探索。本团队长期致力于水中放电和摄电细菌的探索，在电活性生物膜的标准化设计、水质生物信号的解析模型、传感生物膜的抗干扰方法等方面取得了系列成果，研发了自主知识产权的“微谛听”系列BOD在线传感器和进水水质波动预警器，在全国10余个省份30余座污水处理厂得到了稳定的工程验证，即将进入量产阶段。未来将针对地表水、海水研发水质波动快速预警器，有望为环保、养殖、化工等行业提供全新的广谱水质生物传感技术与装备。

Biography

Dr. Xin WANG is a Full Professor and Vice Dean of the College of Environmental Science and Engineering at Nankai University. He received his B.E. (2004) and Ph.D. (2010) from Harbin Institute of Technology, and joined Nankai University in 2010. His research mainly focuses on microbial electrochemical sensors for water quality monitoring. He has published over 230 peer-reviewed papers with more than 15,000 citations and has been authorized 30 patents. He has developed an online BOD sensor that has been applied in many wastewater treatment plants. He leads the “Microbial Electro+” research team at Nankai University. Dr. Wang is the recipient of the National Outstanding Young Scientist Fund, serves as the Principal Investigator of a National Science and Technology Major Project, and has been awarded fellow of Royal Society of Chemistry, the Second Prize in the Natural Science Award by the Ministry of Education, etc.



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