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Microbial Electrochemical Systems

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Message from the Guest Editors

MES mainly include microbial fuel cells (MFCs) and microbial electrolysis cells (MECs) both using electrogenic microorganisms on the anode. Microbial fuel cell (MFC) technology combines the developments in the biotechnology and fuel cell technology. The major difference between MFC and other types of fuel cells is the catalysts used. Instead of expensive noble metal or other chemical catalysts, microorganisms, such as bacteria and yeasts, are used. Microbial electrochemical system (MES) combining waste treatment and extracting energy and recovering resources from waste is a promising technology for sustainable chemical and fuel production, and will have positive impact on the environment and society.

As a multidisciplinary research area, research on MES involves a wide range of topics across different disciplines including and not limited to microbiology, electrochemistry, materials and process integration. Due to the limitation on energy production from MFCs, the focus of the research in MES area has a shift to applying the technology to various applications, such as metal recovery, hydrogen production and microbial electrochemical synthesis of organic compounds from CO_2, as well as using MFC technology for monitoring organic and pollutant concentrations.

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Message from the Editor-in-Chief

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