

Environmental Science: Atmospheres

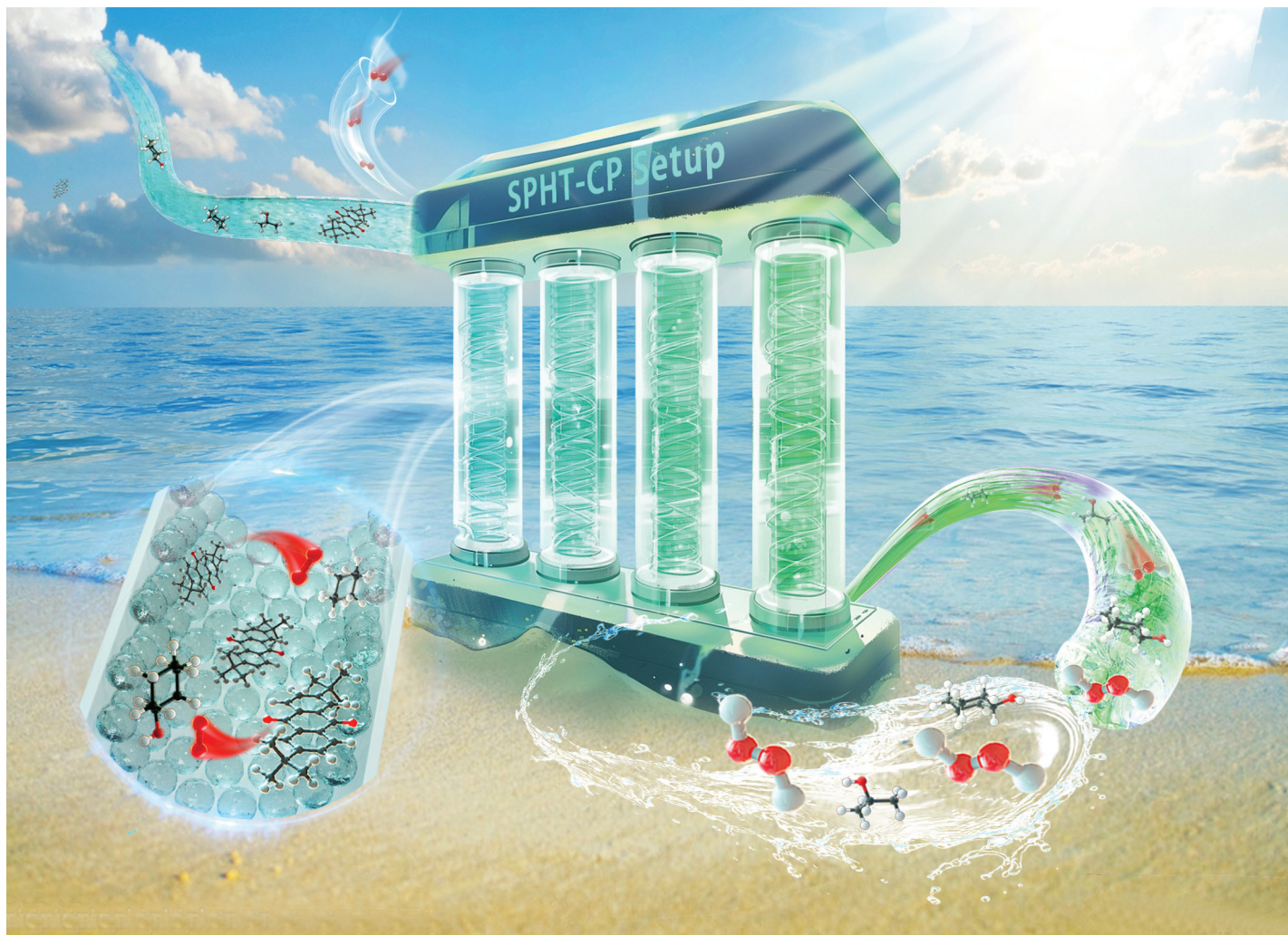
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Fundamental questions
Elemental answers



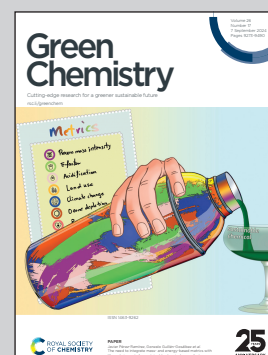


Showcasing research from Professor Qingwei Meng's laboratory, School of Chemical Engineering, Dalian University of Technology, Dalian, China.

Continuous photocatalytic preparation of hydrogen peroxide with anthraquinone photosensitizers

A single-pass high-throughput continuous photocatalytic device has been developed with a characteristic dimension of 0.5 mm, and an adjustable liquid holdup of 40.0–152.5 mL. By modularly filling the reactor pathways and designing the light source pathways, the efficiency of gas–liquid mass transfer and light source utilization have been improved. Under optimal reaction conditions, the H_2O_2 production rate of a 7-minute single-pass continuous reaction is 3950.6 mM h^{-1} , with a space–time yield of $7.90 \text{ mol (L h)}^{-1}$. This demonstrates a promising advancement in the green, continuous, and on-demand synthesis of H_2O_2 .

As featured in:



See Qilei Liu, Qingwei Meng, Jingnan Zhao *et al.*, *Green Chem.*, 2024, **26**, 9310.