



Showcasing research from Professor Jun Zhao's laboratory, School of Mechanical Engineering, Beijing Institute of Technology, Beijing, China.

Self-powered, online, highly sensitive lubricating oil acidity monitoring driven by a triboelectric sensor

A self-powered, real-time, online triboelectric sensor was developed for detecting oil acidity based on oil-solid triboelectricity (OA-TENG). *Via* engineering of tribo-surface molecular with fluorocarbon chains and amino groups, the amino group on the surface has the capability of capturing oxygen-containing contaminants generated during aging through hydrogen bond and covalent bond, and typical acidity contaminants in aged oils can be successfully monitored.

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See Yajie Zhang, Yijun Shi, Jun Zhao *et al.*, *J. Mater. Chem. A*, 2025, **13**, 20394.