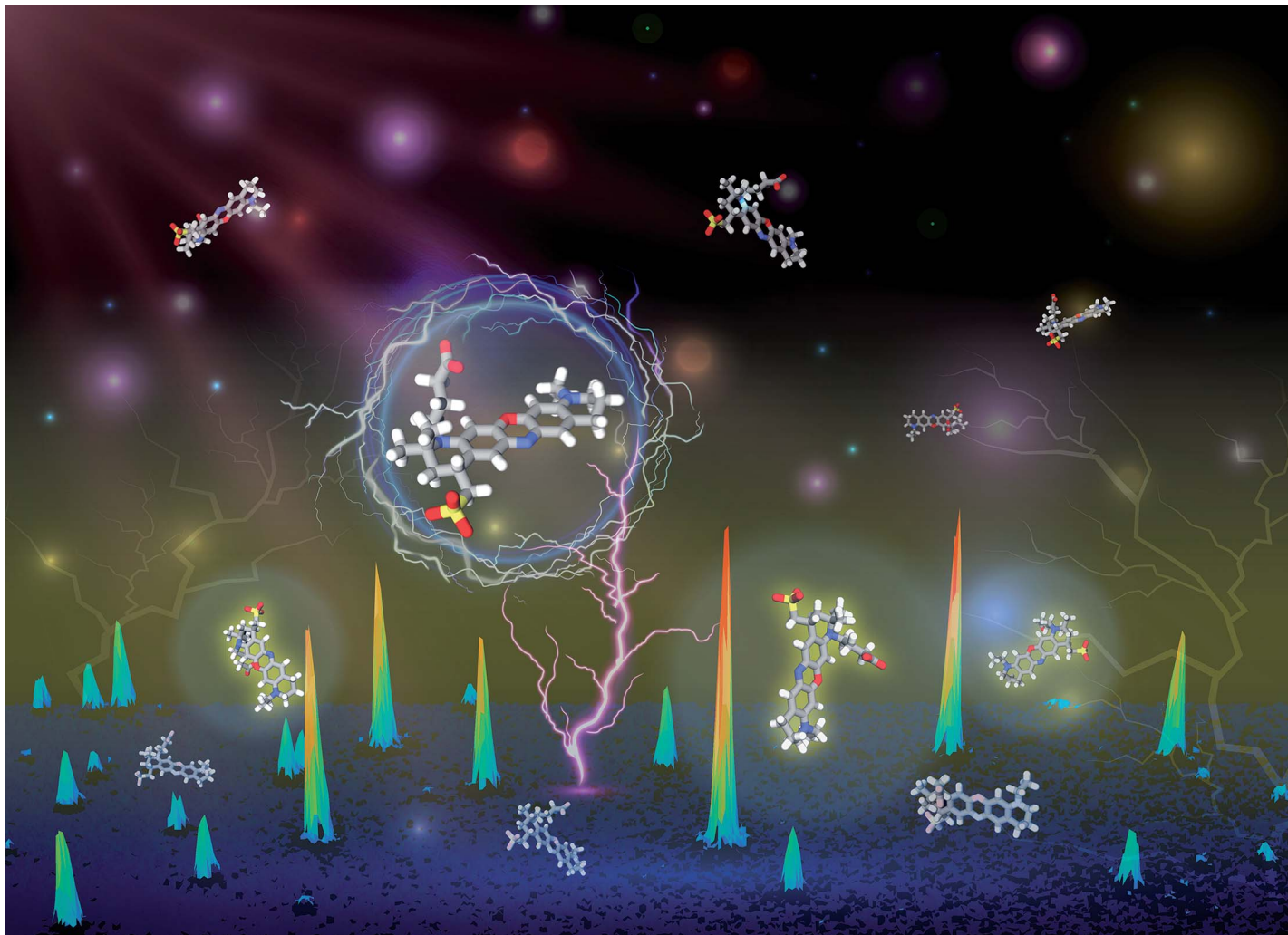




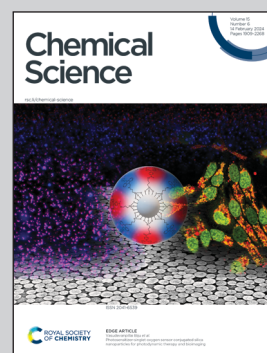
Showcasing research from Professor Matthew D. Lew's laboratory, McKelvey School of Engineering, Washington University in St. Louis, MO, USA.

Single-molecule electrochemical imaging resolves the midpoint potentials of individual fluorophores on nanoporous antimony-doped tin oxide

We report reversible switching of oxazine, cyanine, and rhodamine dyes by a nanoporous antimony-doped tin oxide electrode that enables single-molecule (SM) imaging of electrochemical activity. Since the emissive state of each fluorophore is modulated by electrochemical potential and interactions with redox mediators, single-molecule electrochemical (SMEC) imaging can be used to quantify optically how a solid-state electrode and nearby redox species modulate the redox state of fluorescent molecules with SM sensitivity over a large field of view.

Image credit: Jin Lu

As featured in:



See Jin Lu and Matthew D. Lew,
Chem. Sci., 2024, **15**, 2037.