

# RSC Applied Interfaces

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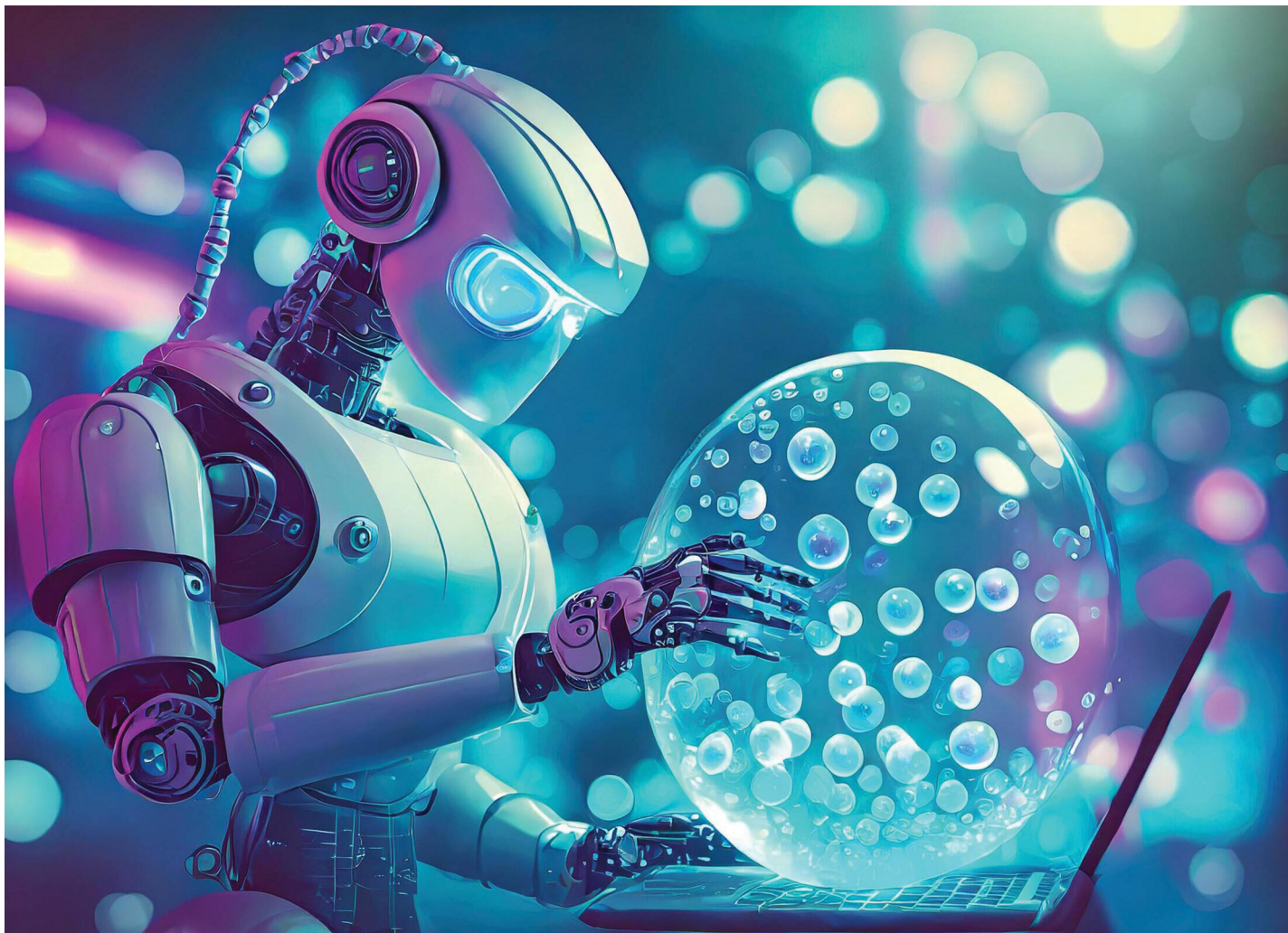
**Interfacial and surface research  
with an applied focus**

**Interdisciplinary and open access**

**[rsc.li/RSCApplInter](https://rsc.li/RSCApplInter)**

**Fundamental questions  
Elemental answers**





Showcasing research from the Institute of Energy and Climate Research, Theory and Computation of Energy Materials (IEK-13) and Electrochemical Process Engineering (IEK-14), Forschungszentrum Jülich GmbH, Germany.

Deep learning-enhanced characterization of bubble dynamics in proton exchange membrane water electrolyzers

This study introduces a deep learning tool for analyzing bubble dynamics in water electrolyzers using optical imaging. Our software rapidly processes thousands of frames to deliver detailed visualizations of bubble ratios, distributions and shape analyses. These insights advance understanding of cell behavior across different voltage levels, enhancing diagnostic techniques. This tool offers a step forward in the mechanistic interpretation of bubbles, contributing to the characterization of energy materials.

As featured in:



See Mohammad J. Eslamibidgoli *et al.*,  
*Phys. Chem. Chem. Phys.*,  
2024, **26**, 14529.