

# RSC Sustainability

GOLD  
OPEN  
ACCESS

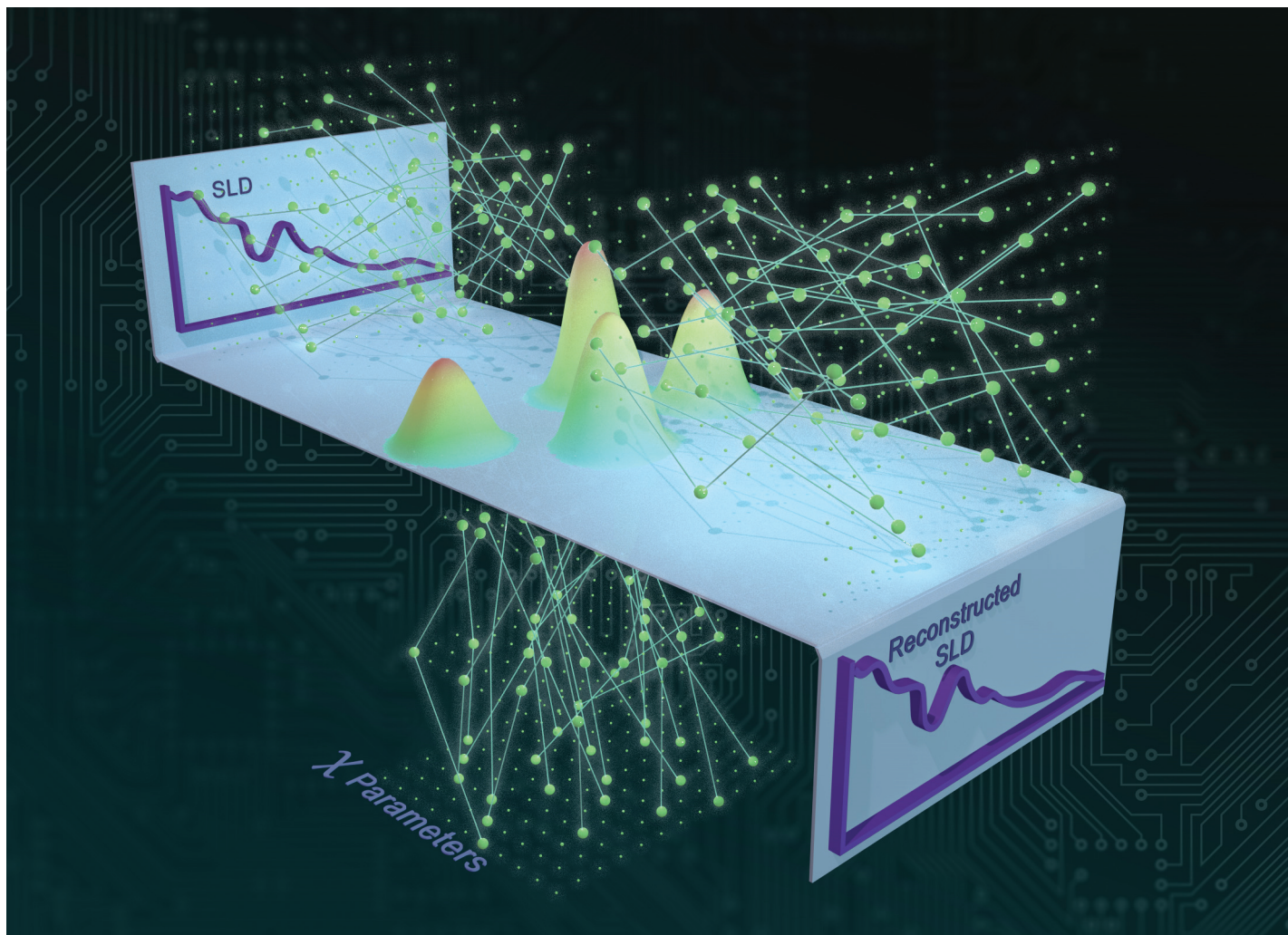
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Fundamental questions  
Elemental answers



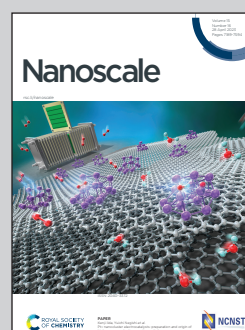


Highlighting research performed at the Center for Nanophase Materials Sciences, a US Department of Energy Office of Science User Facility at Oak Ridge National Laboratory (ORNL), in collaboration with the Neutron Scattering Division, ORNL.

Extraction of interaction parameters from specular neutron reflectivity in thin films of diblock copolymers: an “inverse problem”

Artificial neural networks are used to extract the Flory–Huggins  $\chi$  parameters from neutron scattering length density (SLD) profiles. Combination of a variational autoencoder and multi-layer perceptron is shown to be the most promising computational tool for such an extraction, which paves a way towards automated analysis of neutron reflectivity data.

### As featured in:



See Panchapakesan Ganesh, Miguel Fuentes-Cabrera, Rajeev Kumar *et al.*, *Nanoscale*, 2023, 15, 7280.