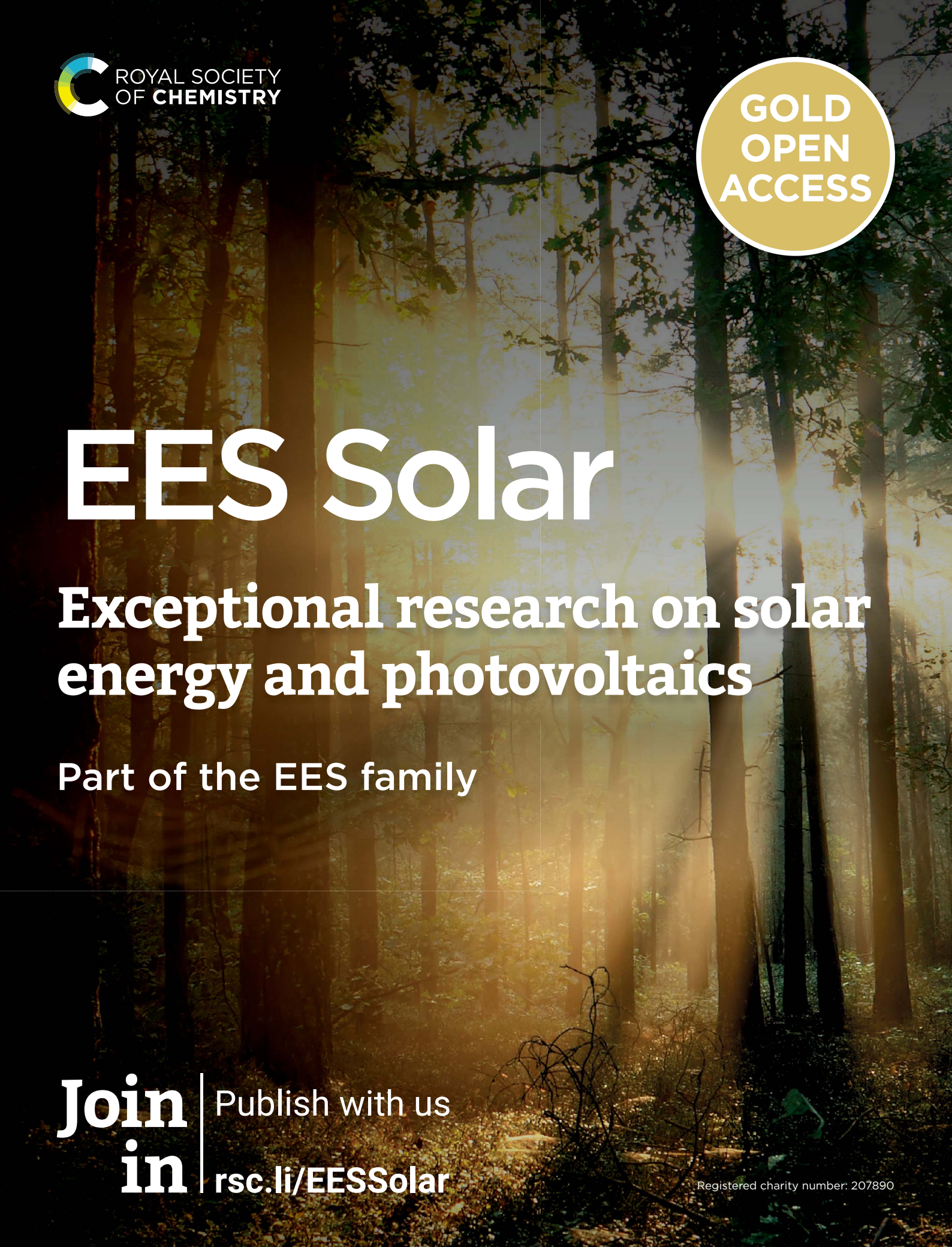
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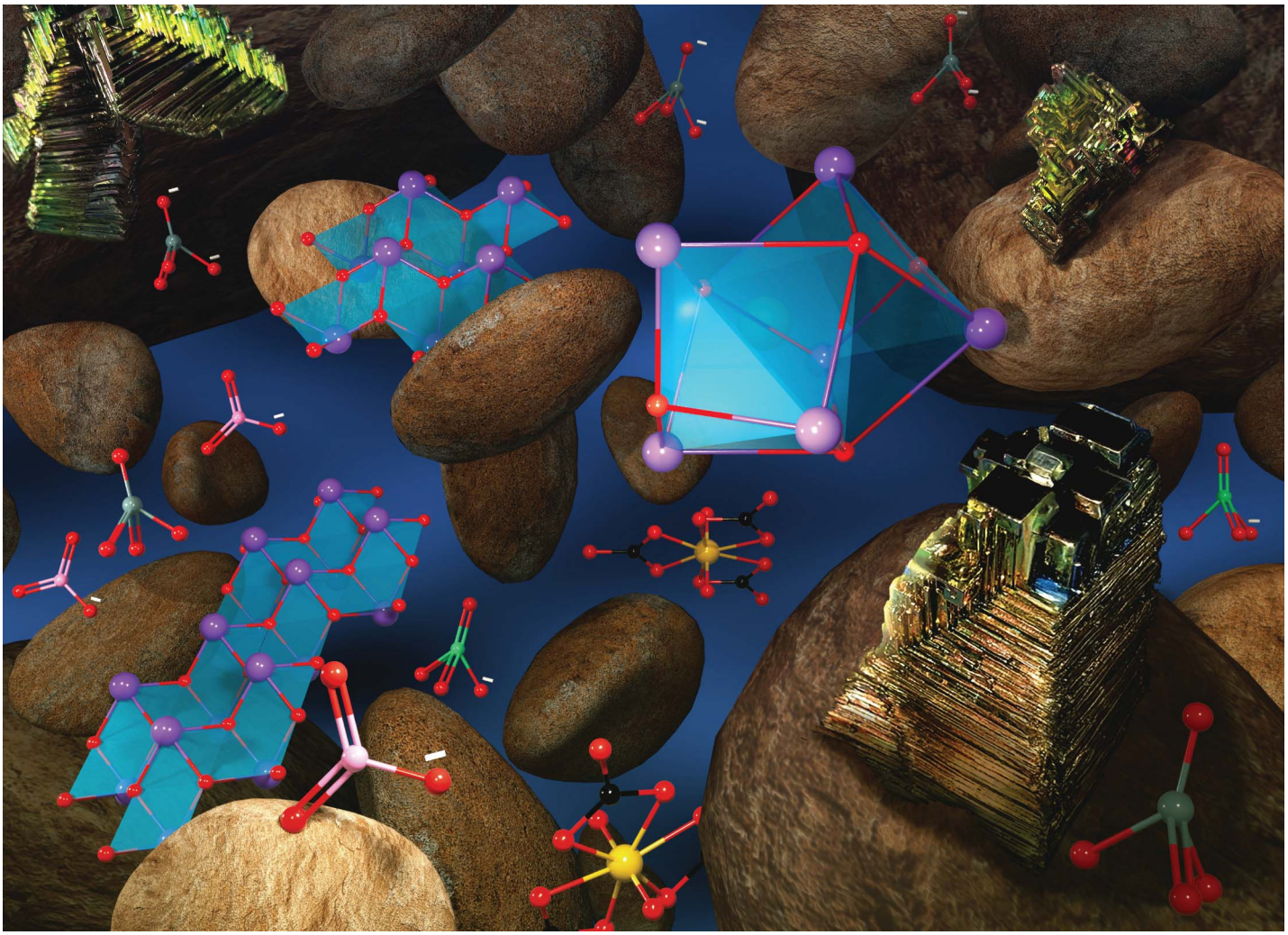

Showcasing a study on the versatility of bismuth-based materials for sequestering contaminants by researchers from Pacific Northwest National Laboratory, Washington State, USA.

Mechanisms of interaction between bismuth-based materials and contaminants for subsurface remediation

Use of bismuth-based materials to sequester multiple contaminants present in the subsurface at Department of Energy legacy nuclear sites is shown. Through a systematic study, we show that bismuth-based materials have different particle sizes and shapes, structural motifs, crystallinity and contaminant interactions, depending on starting material, pH of the solution, and presence of other ions. We showed that the remarkable versatility of bismuth-based materials makes them cost-effective candidates for sequestering co-located contaminants (hexavalent chromium, technetium-99, iodine-129, and uranium) under a wide range of aqueous geochemical conditions.

Back cover image credit: Nathan Johnson, Pacific Northwest National Laboratory

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As featured in:

See Carolyn I. Pearce, Daria Boglaienko, Tatiana G. Levitskaia *et al.,* *J. Mater. Chem. A,* 2025, **13**, 17350.

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