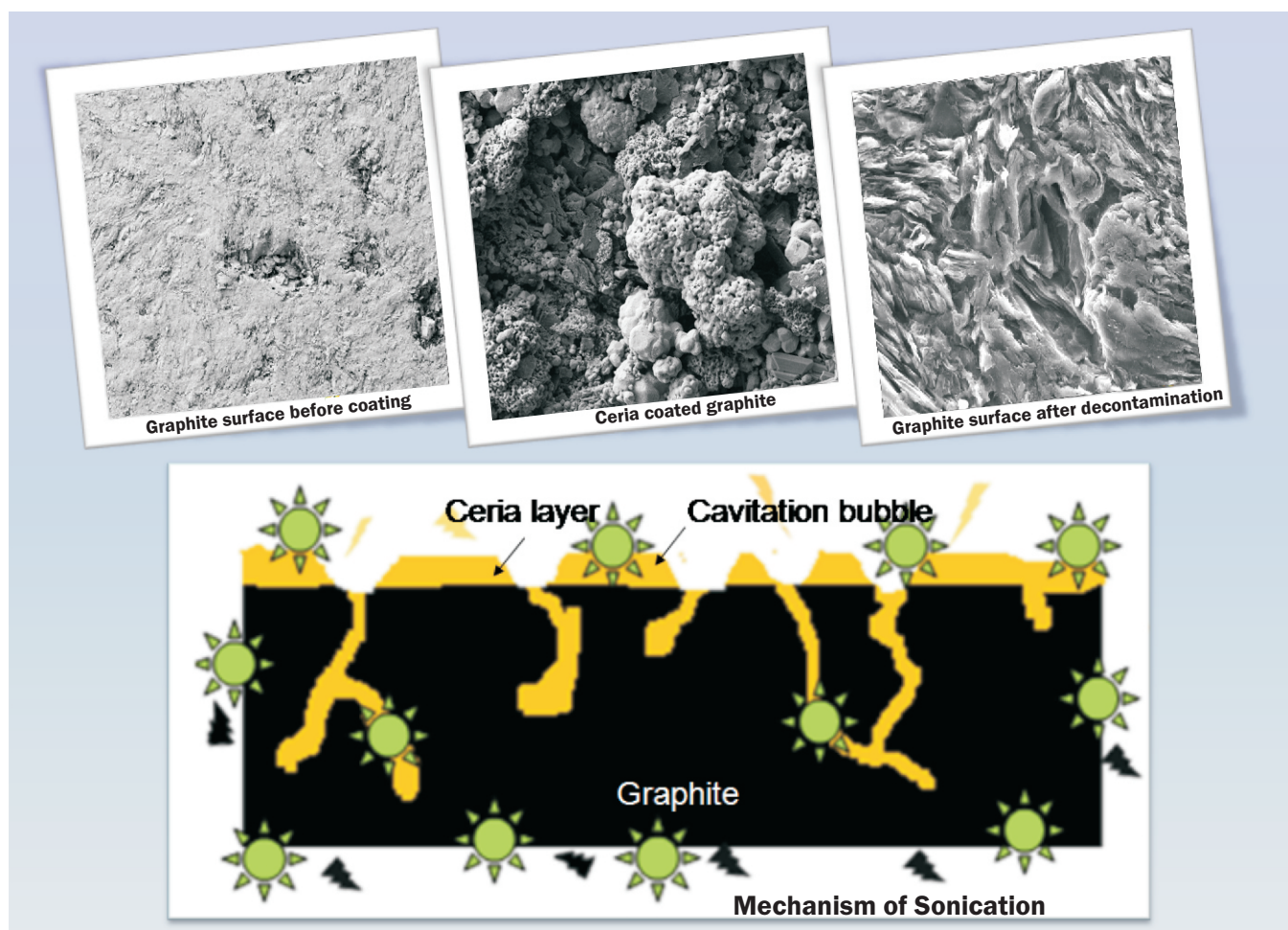


Intensified Ceria Recovery from Graphite Substrate and Cleanup of Leachant using Sonication



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Graphite erosion and ceria recovery from pores during sonochemical decontamination has been evaluated.

There is a huge environmental concern for disposal of nuclear graphite. Our current work (Lahiri *et al.*, 'Intensified ceria recovery from graphite substrate and cleanup of leachant using sonication', *Chemical Engineering and Processing: Process Intensification*, 2022, **174**, 108858) demonstrates sonochemical decontamination of graphite using ceria coating as the simulated contamination. The ceria recovery in the leachant solution, demonstrated to drastically reduce due to sonication, was attributed to the adsorption of cerium ions by the generated carbon residue due to exfoliation of graphite. The study of the carbon residue enabled to understand the anomaly in the observed kinetics and the role of the carbon residue in the removal of Ce^{3+} from the leach liquor. The recyclability of the graphite substrate has been studied by measuring its compressive strength and electrical conductivity. The decontamination and the recyclability of graphite demonstrated here will facilitate circular economy and serve as an important remediation technique.

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