



Glenn T. Seaborg Center Presents

Actinide Separations Chemistry at IGCAR

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Separation of actinides has been a key area of research with regard to nuclear fuel cycle. Reprocessing and waste management are generally based on aqueous processes, especially solvent extraction and ion exchange. The quest for development of new extractants and ion exchange resins is driven by the objectives of enhanced extraction and decontamination, reduced waste volumes, higher stability, easy synthesis and safe operations. The use of high Pu content in fast reactor fuels introduces additional issues such as third phase formation during the extraction of macro levels of Pu(IV) by Tri-n-butyl phosphate in dodecane diluent. With the recent advancements in “green chemistry”, there is added emphasis on studying extraction systems using C-H-O-N extractants such as amides, and room temperature ionic liquids as diluents. Supercritical carbon dioxide extraction is another facet of green chemistry, contributing to reduced liquid waste generation.

The talk will focus on the activities at IGCAR on fast reactors and the associated fuel cycle, emphasizing the above aspects.

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