

## f-Element Separations with a Focus on Uranium Recycling

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Over the past eight decades, uranium recovery, purification, reprocessing, and recycling technologies have evolved to meet the changing demands of the nuclear fuel cycle. Solvent extraction remains a cornerstone of these operations, employing tailored organic extractants and ion-exchange reagents. This presentation will provide a high-level overview of persistent challenges in uranium separations, including extractant stability under process-relevant conditions, phase behavior and hydrodynamics, and selectivity in complex chemical matrices. Emphasis will be placed on emerging solvating extractants for U(VI) recovery and on how molecular design choices can translate into improved process performance.