

CHEMICAL & BIOMEDICAL ENGINEERING GRAD STUDENT SEMINAR

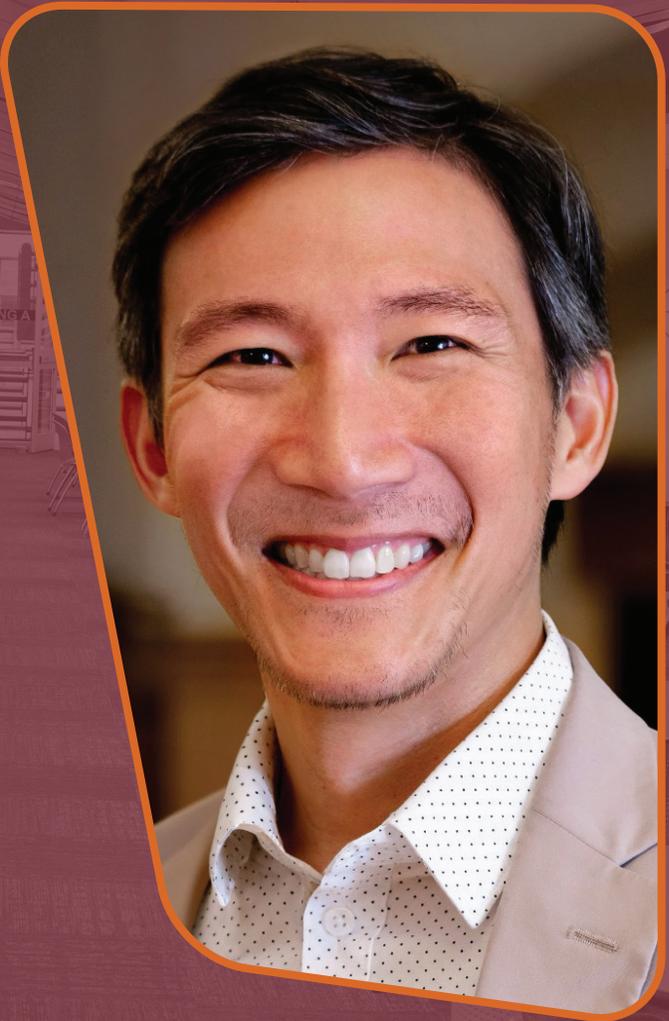
Surface active peptides that fish for rare earth elements

Friday, March 6
11:00 AM
COE B135

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Currently, the most common process for the separation of rare earth elements (REEs) is solvent extraction, transferring the trivalent REE cations from an aqueous phase into an organic solvent. Solvent extraction is energy intensive and environmentally unfriendly, requiring large volume of organic solvents and organo-phosphate-based surfactants. We have designed a peptide that couples the high affinity of a Lanthanide Binding Tag (LBT) peptide with a surface-active domain that promotes separation at interfaces. This rationally design peptide will coordinate selectively with REE ions to participate in more eco-friendly extraction processes. We demonstrate that we can capture the selectivity of LBT peptides, and we can enhance the surface activity of the peptides through the rational design of both hydrophobicity and net charge.



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Department of Chemical & Biomedical Engineering

