Rational Reagent Design for Mineral Processing Applications

- Ionic liquids Deal with Rare Earth Elements
  - Enhance extraction of rare earth elements by tailoring the structure of ionic liquids. This can be applied to extract REEs from coal byproducts.
- Hybrid nanoparticle systems for mine waste management
  - Enhance consolidation of fine mineral tailings using hybrid polymeric nanoparticles.
- Enhanced Fine Coal Flotation Using Novel Polymer Aids
  - Improved combustible recovery and ash rejection
  - Provide valuable insights into the mechanism governing the processibility of fine and ultrafine high-ash coal.
- Recycling the Fluorapatite from Secondary Sources using Polymer-assisted Flotation
  - Aluminum polyacrylamide is tested to distinguish its possible effective role in the flotation of fluorapatite and rejection of gangue minerals.
- Biodegradable Polymers application in Sulfide mineral flotation
  - Develop a model to describe froth phase stability in response to operational variables of flotation.
  - Analyze the possibility of using nano particles to enhance froth stability in complex real ore flotation.

Keywords
- Froth flotation, Fine mineral tailing management, Hybrid polymers, REEs, Ionic liquids

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