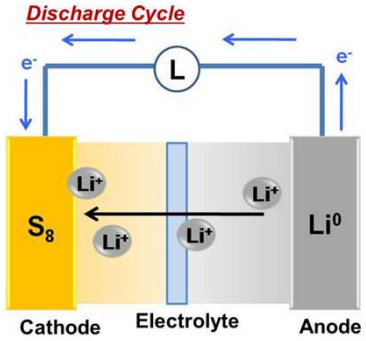
Jeffrey Pyun, University of Arizona, ACS PRF #51026-ND10

Inverse vulcanization

Elemental Sulfur ***Sulfur Copolymers***

Novel Sulfur Utilization



Enhanced Cathode Materials

Li-S Batteries

Novel Utilization of Elemental Sulfur for Nanocomposite Materials and Energy Storage

Jeffrey Pyun, Department of Chemistry & Biochemistry, University of Arizona
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Motivation and opportunities:

1. approximately 7 million tons of excess elemental sulfur generated annually from the hydrodesulfurization in petroleum refining.
2. Limited technologies and chemistry to utilize sulfur (e.g, sulfuric acid production, fertilizers, specialties)
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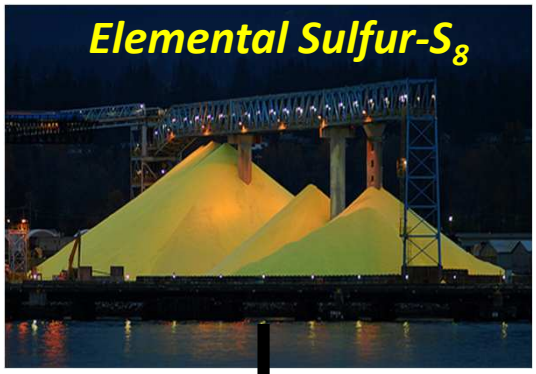

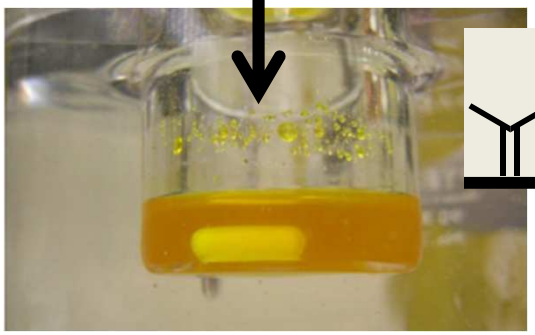

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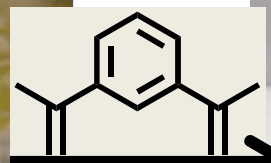

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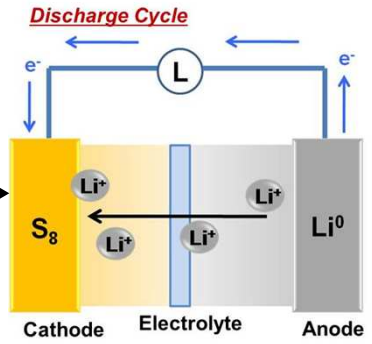

Li-S Batteries

Project Accomplishments:

1) Utilization of liquid sulfur as solvent for bulk polymerization

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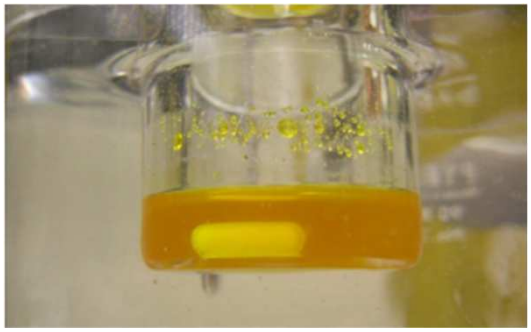
Sulfur Rich Copolymers from Elemental Sulfur: "Inverse Vulcanization"



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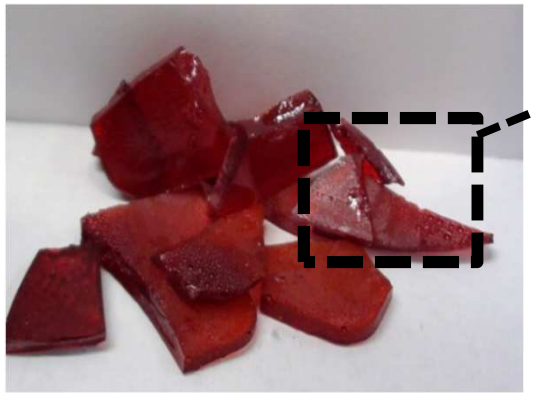

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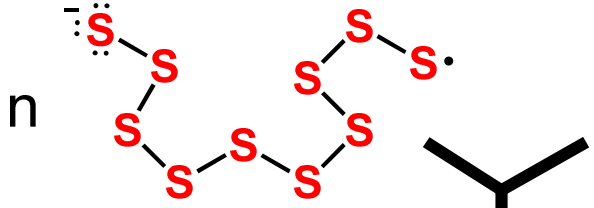

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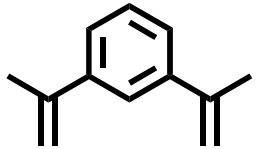

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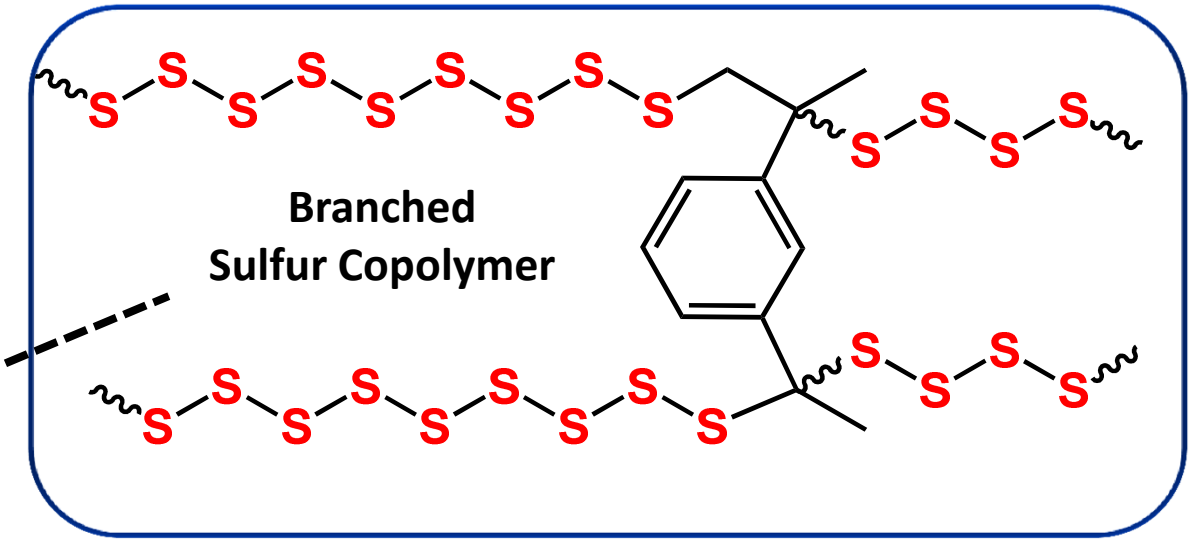

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Pyun *et al., Nature Chemistry* **2012,** *under revision*

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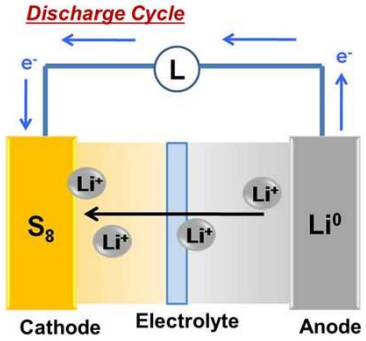

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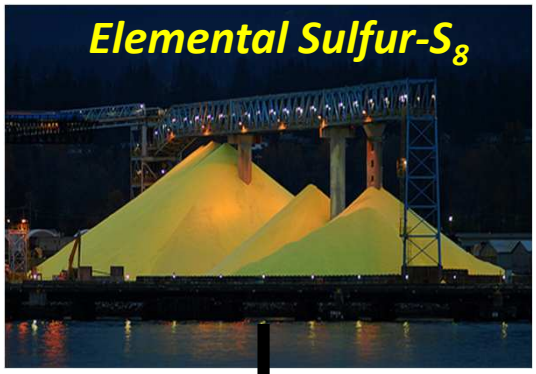

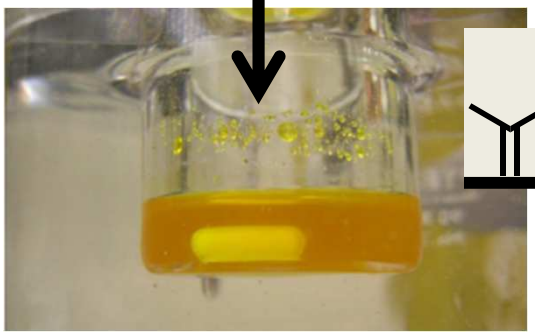

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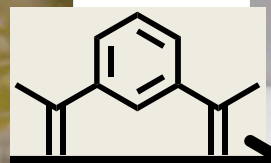

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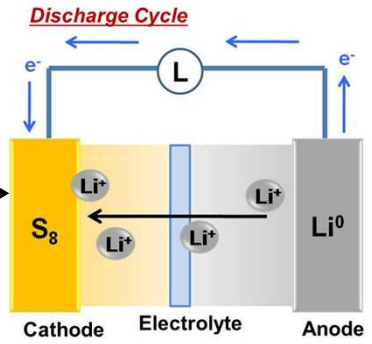

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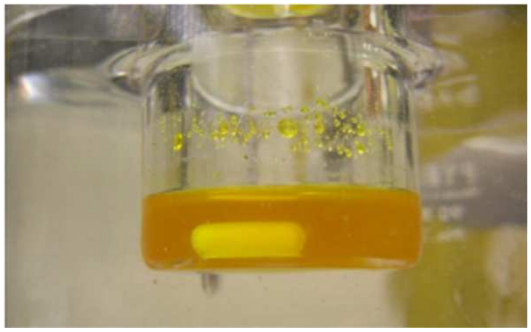

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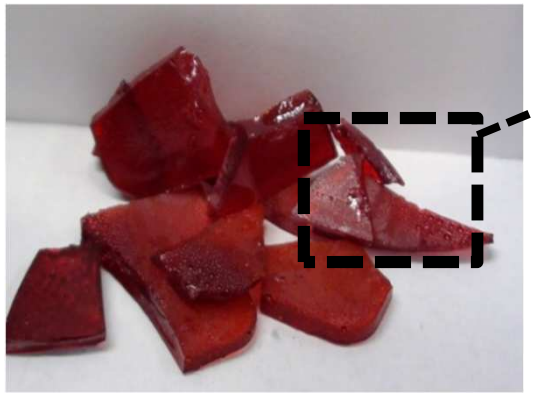

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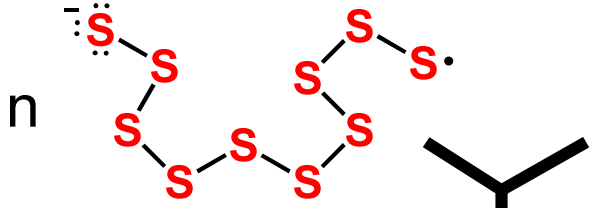

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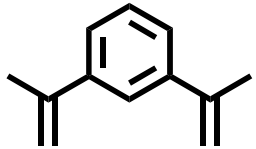

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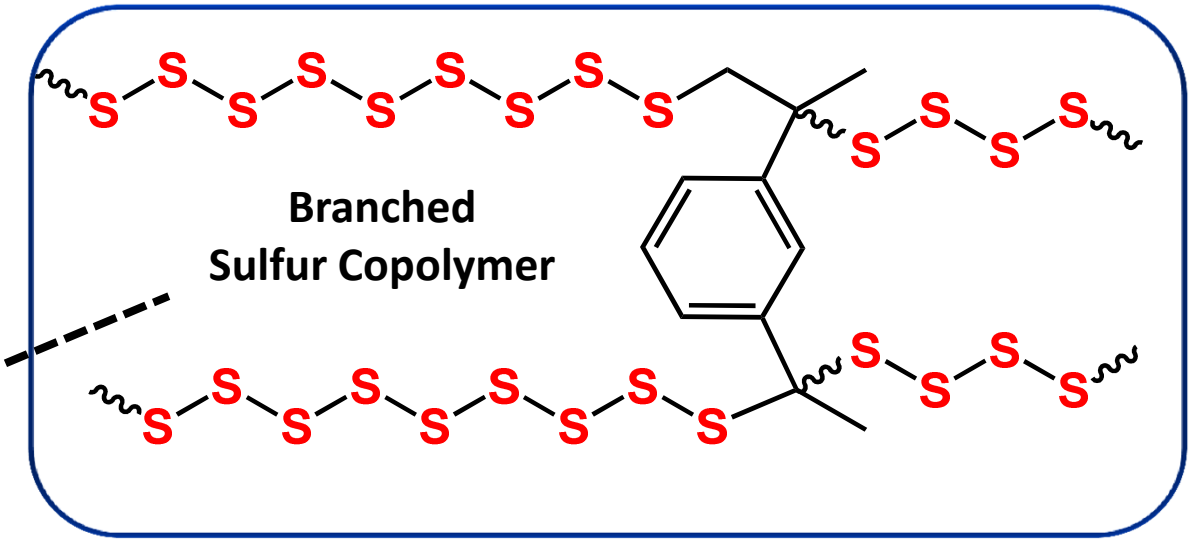

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