<table>
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<th>Title</th>
<th>Organization of anisotropic nanomaterials</th>
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<td>Author(s)</td>
<td>Samuel, Hanria</td>
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Ternary nontoxic I-III-VI compound, CuInS₂ has been regarded as a good candidate for the future generation of solar harvester because of its theoretical direct bandgap that is well matched with the optimal spectral range for photovoltaic applications. Compound which is generally mentioned as CIS (Copper Indium Sulfide) also has other interesting optical properties, making it possible to be developed as lasers and light-emitting applications. Further, the anisotropic shape of its nanocrystals (NC) is the focus of this current study since it gives rise to all attractive properties of CIS.

**objective**

To synthesize colloidal CuInS₂ nanocrystals with anisotropic (triangular, hexagonal, or pyramidal) shape

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**conclusion**

Anisotropic CuInS₂ nanocrystals have been successfully synthesized by thermal decomposition route. Further investigation on its electrical and optical properties can be done to ensure its capability to function as a solar cell.

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**synthesis**

\[ \text{Cul + InAcetyacetate + Dodecanethiol (in Octadecene)} \rightarrow \text{heating} \rightarrow \text{Cul(SR), decompose} \rightarrow \text{oriented precipitation without oleic acid} \rightarrow \text{oxidized nanocrystals with oleic acid} \]

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**results**

X-ray Diffraction Pattern: Roquesite phase

TEM Images - 20-100 nm regular and irregular nanoplates

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Project Title: Organization of Anisotropic Nanomaterials
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Co-supervisors: Dr Sudip Kumar Batabyal, Mr Stevin Snellius Praman