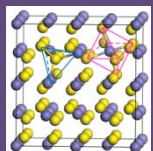


# Energy Conversion from New Environmentally Benign and Low-Cost Photovoltaic Nanomaterials

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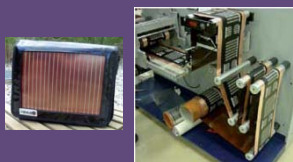
## Advantages of FeS<sub>2</sub>:

- Non-toxic
- Abundant
- Low cost
- Large optical absorption coefficient



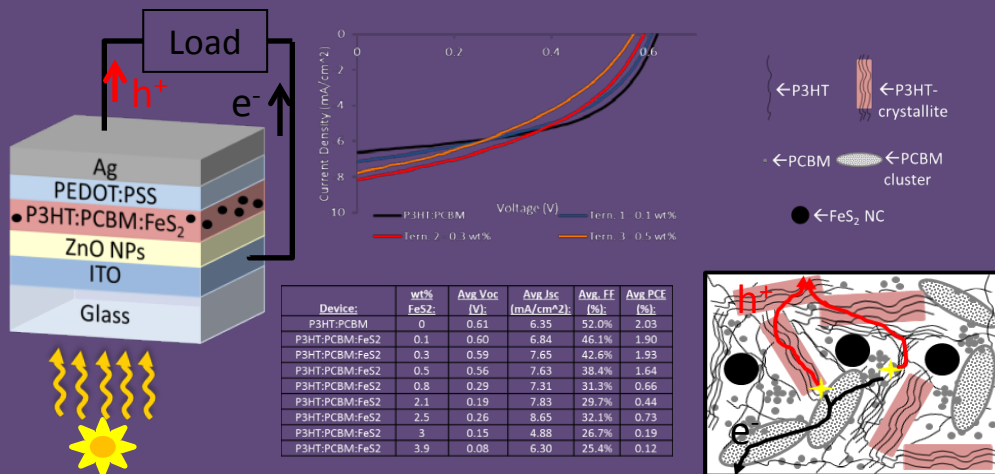
## Advantages of Organic/Inorganic Hybrid PV:

- Solution processing for low-cost, large area production
- Tailored light absorption
- Increased carrier mobilities



## Pyrite-based Solar Cells:

- Inverted ternary hybrid solar cells (P3HT:PCBM:FeS<sub>2</sub>)
- Improved charge transport at low pyrite loading
- Possible changes in micromorphology in the active layer
- Energy diagram with E<sub>g, pyrite</sub> from CV measurements



## Synthesis of FeS<sub>2</sub>:

- Rod-shaped pyrite nanocrystals
- Absorption upto NIR

