Lead Iodide Perovskites

Source: PIB

- A study led by Bharat Ratna **Professor C.N.R. Rao** explores **atomic rearrangements** in **lead iodide perovskites** during phase transitions caused by **temperature** and **pressure changes.**
  - **Perovskite structure:** perovskite refers to any material that has a **crystal structure** like the **mineral perovskite.** Ex: Lead Iodide Perovskites and calcium titanium Perovskites.
- **Lead iodide perovskites** exhibit excellent **optoelectrical properties,** making them promising materials for solar cells. However, their **instability (decomposition in humid air)** is a concern due to structural changes under varying conditions.
  - Despite instability issues, it has commercial potential due to their unique crystalline structures and optoelectronic properties.
  - Lead iodide perovskites's **energy conversion efficiency can be higher than** even that of commercial **silicon-based solar cells**
- Addressing instability could lead to more efficient renewable energy generation using lead iodide perovskites in solar cells, LEDs**,** X-ray shielding, and **Energy Storage Systems.**

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