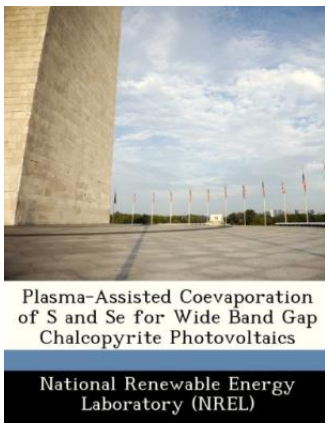

Plasma-Assisted Coevaporation of S and Se for Wide Band Gap Chalcopyrite Photovoltaics

By -

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 26 pages. Dimensions: 9.4in. x 7.5in. x 0.2in.In this work, ITN Energy Systems (ITN) and lower-tier subcontractor Colorado School of Mines (CSM) explore the replacement of the molecular chalcogen precursors during deposition (e. g. , Se2 or H2Se) with more reactive chalcogen monomers or radicals (e. g. , Se). Molecular species are converted to atomic species in a low-pressure inductively coupled plasma (ICP). Tasks of the proposed program center on development and validation of monatomic chalcogen chemistry, tuning of low-pressure monomer chalcogen sources, and evaluation of plasma-assisted co-evaporation (PACE) for CIGS co-evaporation. Likely advantages of deposition by plasma-enhanced co-evaporation include: (1) Providing potential for lower deposition temperature andor for better film quality at higher deposition temperature. (2) Providing potential for decreased deposition times. (3) Providing high material utilization efficiency (90) that results in less deposition on other parts of the reactor, leading to lower clean up and maintenance costs, as well as longer equipment lifetime. High material utilization efficiency also reduces the total operating pressure, which is beneficial for the design and control of metal co-evaporation. Advantages include minimal metal-vapor beam spread and lower source operating temperatures. (4)...

Reviews

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