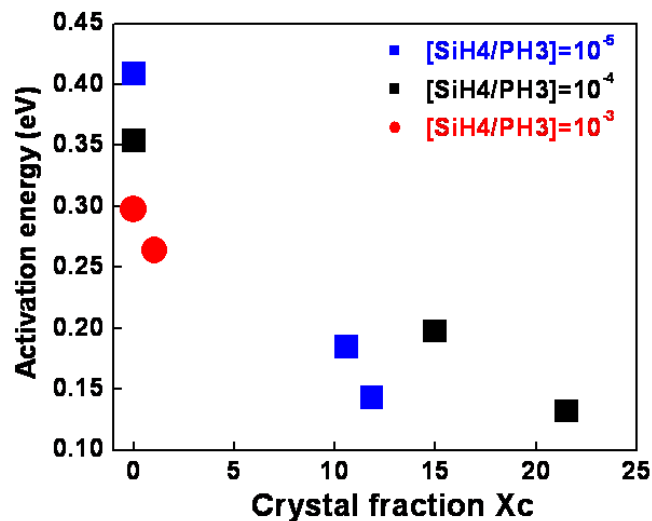


Electronic Properties of Doped Mixed Phase a/nc-Si:H

J. Kakalios¹ and U. Kortshagen²

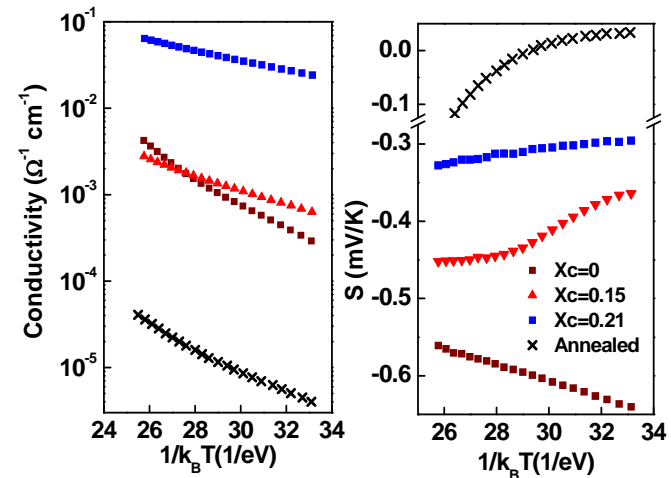
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- Synthesis and characterization of mixed phase n-type doped a-Si:H films containing c-Si nanoparticle inclusions (a/nc-Si:H)
 - ◆ Dual Chamber Co-Deposition system constructed to grow doped a/nc-Si:H films
 - ◆ Dark conductivity activation energy dramatically reduced by addition of nc – content determined by Raman spec.



- Transport Mechanism changes in n-type mixed phase films with addition of nc

- ◆ Thermopower in n-type a/nc-Si:H similar to a-Si without Hydrogen (labeled 'annealed')
- ◆ Suggests conduction occurs by hopping through bandtail/nanocrystal states



- Publications

- ◆ Y. Adjallah, C. Anderson, U. Kortshagen and J. Kakalios, Journal of Applied Physics **107**, 43704 (2010).
- ◆ Y. Adjallah, C. Blackwell, and J. Kakalios, submitted to Phys. Rev. B.
- ◆ L. R. Wienkes, A. Besaws, C. Anderson, D. Bobela, P. Stadins, U. Kortshagen, and J. Kakalios M.R.S. Symposia Proc. (in press, 2010).
- ◆ Y. Adjallah, C. Blackwell and J. Kakalios M.R.S. Symposia Proc. (in press, 2010).