

IEEE KITCHENER-WATERLOO

IEEE EDS/SSC-Chapter Presentation

Professor Nicolas Wyrsh

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"Microcrystalline silicon: From Material to Solar Cells"

Abstract:

Hydrogenated microcrystalline silicon ($\mu\text{c-Si:H}$) deposited at low temperatures ($<250^\circ\text{C}$) is an attractive material for solar cell applications. $\mu\text{c-Si:H}$ can be deposited using the same deposition techniques used for amorphous silicon, but, compared to the latter, it offers an enhanced infrared absorption and an improved stability against light soaking. However, depending on the deposition conditions and type of substrates, $\mu\text{c-Si:H}$ may exhibit various morphologies (grain size, shape, surface morphology, etc). A careful control of the growth of the material is therefore required for optimal device performance.

Several material aspects will be discussed, with a focus on those important for solar cell applications. Recent progress in the development of single-junction and micro morph (amorphous/microcrystalline) tandem devices will be presented, underlining the potential and limits of these devices. Finally, some industrial and scientific perspectives regarding this material and its applications will be showed.

Biography:

Nicolas Wyrsh is known as a Project leader in the group of Prof. Shah (since 1991) at the Institute of Microtechnology (IMT) University of Neuchâtel Switzerland. His interests lie in Transport in amorphous and microcrystalline silicon, microcrystalline cell characterization and development as well as Thin-film silicon light and particle sensors.

DATE: Tuesday April 20, 2004

TIME: 11:00-12:00 noon

LOCATION: DC 1304, University of Waterloo Davis Centre

**All are Welcome
Refreshments will be served**

**Invited by Prof. A. Nathan
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