

Notice of dissertation defense

22.3.2018

Nanoengineering low-cost silicon solar cells

Title	Pros and cons of iron precipitates in crystalline silicon solar cells Rautaerkaumien haitat ja hyödyt kiteisissä piiaurinkokennoissa
Content	<p>Silicon solar cells are a promising way to produce significant amounts of low-carbon electricity. Despite recent advancements within the silicon solar cell industry, further increases in the cost-efficiency of silicon solar cells are necessary if internationally agreed-upon climate targets are to be met.</p> <p>Silicon solar cell's mission is to turn light into electricity with as high efficiency as possible. Trace metal impurities in silicon can significantly hamper this mission even at parts-per-billion concentrations. This Thesis combines multi-scale characterization techniques and predictive numeric simulations to map the impact of these metal impurities from the nanoscale to macroscale.</p> <p>The Thesis presents new insights into the physical behavior of metal impurities in silicon solar cells and enables the manufacturing of high-efficiency silicon solar cells from cheaper silicon feedstock. As a result, the cost-efficiency of solar electricity is enhanced, increasing its cost competitiveness to fossil fuel alternatives and enabling faster climate change mitigation with solar photovoltaics.</p>
Field of research	Micro and nanotechnology
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Date and time	6.4.2018 at 12:00
Place	Aalto University Computer Science Building, hall T2, Konemiehentie 2, Espoo
Opponent	Professor Giso Hahn, University of Konstanz
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