Semiconductor for Solar Energy Conversion

6 hp

Course responsible:
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Course Description
This course focuses on the fundamentals of semiconductor for understanding photovoltaic and photoelectrochemical solar energy conversion. It is designed for the PhD students and other students such as master students who are interested in this field. The course will cover the following topics:

- Introduction of Photovoltaic and Photoelectrochemical Solar Energy Conversion
- Energy Bands and Carrier Concentration in Thermal Equilibrium
- Carrier Transport Phenomena
- Semiconductor p-n Junction and Schottky junction
- Semiconductor Solar Cell
- Principles of Photoelectrochemical Solar Energy Conversion

The course will be based on some book chapters.

Examination
Before each lecture, you will get an assigned text to read. At the start of each lecture, there is a pre-lecture quiz around 15 minutes on the content of the upcoming lecture.

After each lecture, a set of home assignments will be given. The home assignment will be handed in at the latest at the start of the next lecture.

We will not have the written exam. The final grade (pass) will be given based on how well you performed in the continuous quizzes, homework assignments and discussions in the course. Thus, the participation and discussions would be mandatory.

Time Plan
The course is planned for 6 weeks from Oct. 2019 to Nov. 2019.

Application to
Jianwu Sun at IFM, jianwu.sun@liu.se, latest Sep. 30, 2018.