

Topic	Electrical studies of semiconductor materials
Topic is suitable for	<ul style="list-style-type: none"> • practical works of bachelor students • graduation thesis of bachelor students • practical works of master students • graduation thesis of master students
Contact	Raavo Josepson (raavo.josepson@ttu.ee)
Annotation	<p>Studies of semiconductor materials are carried out with material scientists of Tallinn University of Technology. The main research objects are solar cells which have been produced in Tallinn University of Technology. Also it is possible to study other semiconductor objects. We use current-voltage characteristics, quantum efficiency measurements and impedance spectroscopy (admittance spectroscopy) in our studies. Measurements can be carried out at different temperatures (10K - 300K)</p> <p>Quantum efficiency measurements show how the generated current of solar cells depends on the energy of quantum of used light. In case of impedance spectroscopy impedance of the object and phase between current and voltage are measured. Using those results it is possible to calculate parameters which describe the structure of semiconductors.</p>
Expectation for candidate	Must have interest in experimental physics, computer skills are essential. Basic knowledge of structure of semiconductors and electric current (alternating and direct current) are required. Some knowledge on LabVIEW programming does not harm.

