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**Modulbezeichnung:** **Materials and devices for opto-electric and energy technologies (GRK2495-Lecture)** **5 ECTS**

(Materials and devices for opto-electric and energy technologies)

Modulverantwortliche/r: Christoph J. Brabec, Masashi Kato

Lehrende: Masashi Kato, Christoph J. Brabec

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Startsemester: WS 2020/2021

Dauer: 1 Semester

Turnus: unregelmäßig

Präsenzzeit: 90 Std.

Eigenstudium: 60 Std.

Sprache: Englisch

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**Lehrveranstaltungen:**

Seminar on the basis of the Int. Conference on Next Generation Solar Energy (NGSE5) (WS 2020/2021, Vorlesung, 3 SWS, Christoph J. Brabec)

Electronic Materials Analysis (WS 2020/2021, Vorlesung, 3 SWS, Masashi Kato)

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**Empfohlene Voraussetzungen:**

bachelor studies a suitable subject

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**Inhalt:**

The FAU-NITech lecture series where Professors co-teach a module of two interdisciplinary graduate level lectures is organized by the International Doctoral Program GRK2495 Energy Conversion Systems. This module (5ECTS) consists of 2 lectures "Seminar on the basis of the Internat. Conference on Next Generation Solar Energy (NGSE59" from Prof. Brabec and "Electronic Materials Analysis" from Prof. Kato

**Lernziele und Kompetenzen:**

Novel research, concepts, and developments in photovoltaics will be discussed and advantages, the current trends in relation to different materials, namely perovskites, organic materials, light-absorbing dyes, quantum dots, and tandem / multi-junction solar cells offer will be analyzed. Theory and practice of electronic materials characterization and analysis based on the case of semiconductors will be introduced. Characterization and analysis techniques for semiconductors can easily be applied to other electronic materials, and the techniques are powerful tools to know properties of the electronic materials.

**Literatur:**

"Semiconductor Material and Device Characterization" by Schroder, D. Wiley-IEEE Press, c2006

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**Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:**

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

[1] **Elektrotechnik, Elektronik und Informationstechnik (Master of Science)**

(Po-Vers. 2015s | TechFak | Elektrotechnik, Elektronik und Informationstechnik (Master of Science) | Gesamtkonto | Wahlmodulbereich aus der FAU)

Dieses Modul ist daneben auch in den Studienfächern "Energietechnik (Master of Science)", "Maschinenbau (Master of Science)", "Mechatronik (Master of Science)", "Wirtschaftsingenieurwesen (Master of Science)" verwendbar.

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**Organisatorisches:**

Both lecture contents of this module are provided on studon <https://www.studon.fau.de/cat3069794.html> (Angebote-Forschungseinrichtungen-Graduiertenkolleg 2495: Energiekonvertierungssysteme-Block Lectures)

Anmeldung über meincampus, studon oder [julia.b.berger@fau.de](mailto:julia.b.berger@fau.de)

Geeignet für Masterstudierende aus: EEI, ET, MWT, NT, MAP, CE, MB, ME, WING