Modulbezeichnung:	**Interface phenomena (CME4)** (Interface phenomena)	**15 ECTS**
Modulverantwortliche/r:	Rainer Fink	
Lehrende:	Andreas Görling, Rainer Fink, Bernd Meyer, Jörg Libuda, u.a., Christian Papp	

Startsemester: SS 2020	Dauer: 2 Semester	Turnus: halbjährlich (WS+SS)
Präsenzzeit: 195 Std.	Eigenstudium: 255 Std.	Sprache: Englisch

Lehrveranstaltungen:

A. Two units per 2L + 1S from the offers A1 - A4 chosen by the student:

One of the two units can be replaced by an equivalent interdisciplined course with the total of 5 ECTS out of the research field of „Interface-controlled processes“ in other departments:
A5: Surface Physics
A6: Physics of Nanostructures
A7: Nanoparticles and Nanostructured Thin Films
A8: Nanoscale Surface Characterization and Structures

or related courses from the „Catalysis“ or „Molecular Nanoscience“ modules.

A1: Organic Thin Films

Please note: this lecture is no longer offered in winter term 2020/21!

Please check with the module coordinator which lectures you can attend as a Substitute.

A2: Symmetry and Group Theory

Please note: this lecture is no longer offered in winter term 2020/21!

Please check with the module coordinator which lectures you can attend as a Substitute.

A3: Modern Techniques in Surface Science

Modern Techniques in Surface Science (SS 2020, Vorlesung, 2 SWS, Christian Papp et al.)
Seminar Modern Techniques in Surface Science (SS 2020, Seminar, 1 SWS, Christian Papp et al.)

A4: Specialization Lecture from Theoretical Chemistry or Computational Chemistry (Quantum Chemistry I, Modelling catalytic processes, Theory of Surface Phenomena)

Please note: the lectures "Quantum Chemistry I" and "Theory of Surface phenomina" are no longer offered in winter term 2020/21!

Please check with the module coordinator which lectures you can attend as a Substitute.

Modeling of Catalytic Processes (SS 2020, Vorlesung, 2 SWS, Bernd Meyer)
Modeling of Catalytic Processes (Praktikum) (SS 2020, Praktikum, 2 SWS, Bernd Meyer et al.)

B. Lab Course Interface phenomena, projects in one of the IZ-ICP research groups (P, 7 SWS)

Attendance in lab course is compulsory!

Lab Course Interface Phenomena (SS 2020, Praktikum, 7 SWS, Rainer Fink et al.)

Inhalt:

The module focuses on physical, chemical or technological aspects of modification, manipulation and characterization of interfaces. These aspects relate to the research of ideal model systems (surfaces and adsorbates on single crystal surfaces) or real systems, in which the interface plays a crucial role for the respective properties. In all cases, the local electronic and chemical interactions at the interface affect the geometric structure (e.g. adsorption geometry) and consequently the chemical and physical properties.

Lernziele und Kompetenzen:

Students

- deepen their knowledge in experimental methods and theoretical aspects to describe and characterize interface phenomena
- are familiar with different modern analytical techniques and can employ the in practice
- are able to perform experiments independently and to analyse the data
- are familiar with the model-type description of experimental datasind vertraut mit der modellhaften Beschreibung und Modellierung experimenteller Daten
- will be able to present and discuss their results and actual topics related to interface science in front of a specialists audience.

Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

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

[1] **Chemie (Master of Science): 1-2. Semester**
(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlpflichtmodul | Grenzflächenphänomene)

[2] **Chemie (Master of Science): 1-2. Semester**
(Po-Vers. 2009 | NatFak | Chemie (Master of Science) | Wahlmodul | Grenzflächenphänomene)

Studien-/Prüfungsleistungen:

Grenzflächenphänomene (Prüfungsnummer: 65601)
(englische Bezeichnung: Oral Examination or Examination (Klausur) on Interface Phenomena)

Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 45
Anteil an der Berechnung der Modulnote: 100%
weitere Erläuterungen:
O45 (PL): Oral examination 45 min (O45), 2 examiners,
EX (SL), EX (SL), LAB (SL)
Prüfungssprache: Englisch

Erstablegung: WS 2020/2021, 1. Wdh.: SS 2021
1. Prüfer: Bernd Meyer
1. Prüfer: Jörg Libuda
1. Prüfer: Andreas Görling
1. Prüfer: Rainer Fink

Organisatorisches:

Grading procedure: Result of the oral examination (100%)

Bemerkungen:

Module compatibility: M.Sc. Chemie (Mandatory elective module or Elective module) / M.Sc. Molecular Science (only as Elective module)