

에너지과학과 해외석학 집중특강

SKKU DOES Intensive Lecture Series by Foreign Scholars

SKKU DOES (Department of Energy Science) would like to invite students to Intensive Lecture Series by Foreign Scholars as below. These lectures are one of the main programs of BK21PLUS project which has the purpose of enhancing the quality of students' education.

Instructor	Lecture topic	Date	Time	Location
Prof. Seong-Gon Kim (Mississippi State University)	Quantum Mechanics for Energy Science	7/24, 2019 (Wed.)	10:00-12:00	N Center 86108
		7/31, 2019 (Wed.)		
		8/7, 2019 (Wed.)		
		8/14, 2019 (Wed.)		

Instructor	Lecture topic	Date	Time	Location
Prof. Wanli Ma (Soochow University)	Properties of semiconductor nanocrystals and their applications in the 3rd generation photovoltaics	7/30, 2019 (Tues.)	14:00~16:00	N Center 86126
		8/6, 2019 (Tues.)		
		8/13, 2019 (Tues.)		
		8/20, 2019 (Tues.) ↓	10:00~12:00	
		8/16, 2019 (Fri.)		

NOTE:

- ☞ The lectures are open to ALL.
- ☞ This is a non-credit program. There are no grades or exams – just learning for the sake of learning.
- ☞ The dates and venues may be subject to change.
- ☞ DOES office: 031-299-4272

에너지과학과 해외석학 집중특강

SKKU DOES Intensive Lecture Series by Foreign Scholars

Lecturer	Prof. Seong-Gon Kim (Mississippi State University)
Lecture Topic	Quantum Mechanics for Energy Science
Objective	The course will provide the students with a comprehensive introduction to Quantum Mechanics necessary for careers in energy science.
Description	This course is intended to provide an introduction to fundamentals of Quantum Mechanics (QM) relevant to energy science. It is particularly intended for the graduate students who have non-physics undergraduate degrees. We will learn the basic mathematical language of QM and its relationship with classical mechanics. Next we will learn the Postulates of QM and their applications to simple cases. We will discuss several topics that are unique to QM, such as measurement, uncertainty relations, and spin.
Lecture 1 7/24, Wed. 10:00~12:00 N Center 86108	Mathematical Tools of Quantum Mechanics
Lecture 2 7/31, Wed. 10:00~12:00 N Center 86108	Postulates of Quantum Mechanics
Lecture 3 8/7, Wed. 10:00~12:00 N Center 86108	Simple Problems in Quantum Mechanics
Lecture 4 8/14, Wed. 10:00~12:00 N Center 86108	Angular Momentum and Spin in Quantum Mechanics

에너지과학과 해외석학 집중특강

SKKU DOES Intensive Lecture Series by Foreign Scholars

Lecturer	Prof. Wanli Ma (Soochow University)
Lecture Topic	Properties of semiconductor nanocrystals and their applications in the 3rd generation photovoltaics
Objective	Introducing the basic properties of semiconductor nanocrystals and the recent progress of semiconductor nanocrystals based solar cells
Description	During this course, we hope to teach students: 1. the basic concept and properties of semiconductor nanocrystals. 2. the methods for semiconductor nanocrystals synthesis. 3. how to achieve high photovoltaic performance for semiconductor nanocrystals.
Lecture 1 7/30, Tues. 14:00~16:00 N Center 86126	Basic properties of semiconductor nanocrystals 1. Quantum confinement 2. Tunable bandgap 3. Surface effect 4. High-quality optical properties 5. Multiple exciton generation
Lecture 2 8/6, Tues. 14:00~16:00 N Center 86126	The synthesis of semiconductor nanocrystals 1. Basic theory for nanocrystals synthesis 2. History and development for high-quality NCs synthesis 3. Shape control 4. Core/shell structure 5. Ion-exchange 6. Doping
Lecture 3 8/13, Tues. 14:00~16:00 N Center 86126	Semiconductor nanocrystals for the 3rd generation photovoltaics 1. Why photovoltaics? 2. Progress of solar cells 3. Introduction for the 3rd generation photovoltaics 4. Why nanocrystals solar cells? 5. Progress of nanocrystals solar cells
[UPDATED] Lecture 4 8/16, Fri. 10:00~12:00 N Center 86126	"New star" - Perovskite nanocrystals: synthesis and photovoltaic application 1. Background of perovskite 2. Why is perovskite nanocrystal so special? 3. The synthesis of perovskite nanocrystal. 4. Perovskite nanocrystals for photovoltaic application. 5. Challenges and perspectives