Graduate School Program in
College of Engineering, National Taipei University of Technology (NTUT)

-Energy and Optoelectronic Materials Program

✧ Introduction

Many environmental friendly renewable energy materials and technologies have been developed or are developing to replace fossil fuel. It is a consequential trend to develop novel materials for more efficient renewable energy in the future. Except the energy materials, optoelectronic device also plays an important role in our daily life. The materials are the most basic issue for the development of energy and opto-electrical application. National Taipei University of Technology (NTUT) opens a special program called ”Energy and Optoelectronic Materials Program (EOMP)” to train students for above purpose.

EOMP is a special program for students who came from of other countries to Taiwan for the Master’s degree or Ph.D. study at College of Engineering in NTUT. EOEMP opens for foreign students who are interested in the pioneer energy and optoelectronic related materials. EOMP integrates the resources and professors from different institutes in College of Engineering, NTUT, including Institute of Chemical Engineering, Institute of Bio-Technology, Institute of Organic and Polymeric Materials, and Institute of Material Resources Engineering.

Professors involved in this program are all interested in the energy oroptoelectronic materials and devices such as solar cells, dye-sensitized solar cell (DSSCs), biofuels, and fuel cells, memory device, light emitting diodes, and liquid crystal display etc. Students will learn and study the basic knowledge and technology related to energy and optoelectronics related materials and devices from EOMP. Students who came from everywhere in the world are welcome to apply to EOMP to learn and study high technique and useful knowledge in energy and opto-electrionic materials in NTUT as well as to enjoy the life and culture of Taiwan.

✧ Professors

The background and research interests of professors involved in EOMP are list below.

Professor	Academic Background	Research Interests
Sea-Fue, Wang	Ph.D./Materials Science , The Pennsylvania State University, USA	Electrical, Magnetic, and Optical Materials Preparation and Characterization of Thin Films Synthesis of Nanomaterials Ceramic Processing
Yeh-Fang, Duann	Ph.D./Deapartment of Chemistry, National Taiwan University, Taiwan	Organic Synthesis, Polymer Chemistry, Analytical Chemistry
Albert Shea-Jue, Wang	Ph.D./Dep. Of Electro-Physics, National Chiao-Tung University, Taiwan	Fabrications and applications of organic semiconductor devices, Fabrications and integration of deep submicron semiconductor devices, Fabrications and applications of novel electronic materials, Fabrications and applications of high temperature superconductors
Syang-Peng, Rwei	Ph.D./Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, USA	Polymer Property, Polymer Processing, Polymer Rheology
Yih-Tyan Liao	Ph.D./Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, USA	Nanofiber and Nanocomposite, Cholesteric Liquid Crystal, LCD Surface Alighment Film, Living Free Radical Polymerization,Optoelectronic Material
Shu-Mei Chang	Ph.D./University of Cambridge, UK	Light-emitting Polymers, Opto-electronic Materials, Organic Chemistry, Polymer Chemistry
Chaochin Su	Ph.D./Physical Chemistry,Columbia University,U.S.A	Time-of-flight(TOF),Modulated Molecular Beam Scattering(MMBS),Mass Spectroscopy, AES, LEED and Ultra-high Vacuum(UHV) Techniques
Wan-Chin Yu	Ph.D./Chemical Engineering, University	biomass conversion, cell culture, crystal growth

	of Wisconsin-Madison, USA	
Hsin-Ta Wang	Ph.D./Polymer Science,University of Akron,USA	Polymer Science, Biomaterials Analytical Chemistry
Yao-Yi Cheng	Ph.D./Materials Sci. and Eng.,M.I.T.,U.S.A	Polymer Materials, Polymer Physics,Dielectirc Materials
Norman, Lu	Ph.D./University of Bristol, UK	Solar cell, Green technology, Fluorine Chemistry, Synthetic Chemistry, Organometallics (e.g. Liquid Crystal Materials, Lithium Battery Electrolytes)
Thomas C.-K., Yang	Ph.D./Department of Chemical Engineering, University of Missouri, USA	Development and application of infrared materials, semiconductor packaging, bio-medical materials and bioMEMS, nano material Manufacture, High performance computing, thermal and chromatic analysis
Sheng-Tung, Huang	Ph.D./Brandeis University-Waltham, USA	new synthetic methodology, innovated drugs design, and development of biosensor
Yung-Chin, Yang	Ph.D./Department of materials science and engineering, National Cheng Kung University, Taiwan	1.Anode fabrication of SOFC by plasma spraying 2. Dental porcelain and metal research 3. Synthesis of meso-porous bioglass 4.Anti-bacterial properties of Nano-powders in biomaterials
Kun-Li, Wang	Ph.D./Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Japan	Design and Synthesis of Novel Organic and Polymer Materials Toward opto-electrical applications

✧ Lectures

The knowledge related to energy, optical, electrical materials and opto-electrical transformation materials will be introduced in the lectures for the EOMP. All the lectures in EOMP will be commentated in English. The lectures opened for EOMP are as following.

- Surface Science and Technology
- Opto-electronic Materials
- Biorenewal Energy and Materials
- Advanced Inorganic Chemistry (related to DSSC researches)
- Semiconductor Process Integration
- Characterization Methods for Semiconductor and Optoelectronic Materials
- Optoelectronic Polymer Materials
- Advanced Organic Chemistry
- Organic Synthesis
- Advanced Instrumental Analysis
- Application of Thin Film Technology to Fuel Cells
- Advanced Science and Materials
- Liquid Crystal Science and Technology
- Electrical Magnetic and Optical Properties of Materials
- Physical Chemistry of Macromolecules
- Polymer Synthesis
- New Energy Materials
- Polymer Processing
- Plasma Engineering