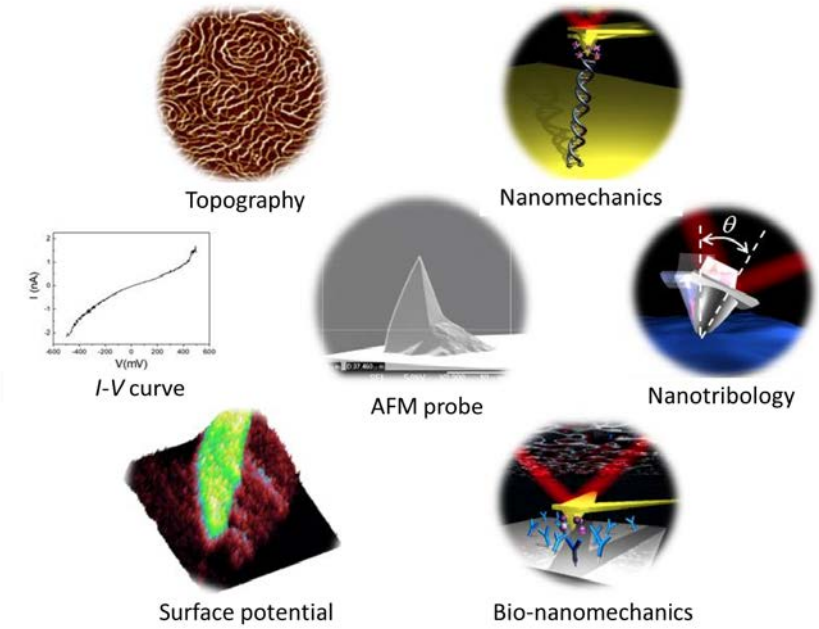
Department of Physics

Study of Nanomechanics, Nano-biomechanics, and Nanotribology

Our research interests mainly focus on the physical properties of novel nano-materials, with a recent emphasis on the nano-mechanical, nano-tribological and nano-electrical properties of novel 2D materials and conducting polymer with nanoscale dimension by using state-of-art atomic force microscopy-based techniques.

Techniques used in study

1. Atomic force microscopy (AFM)-based techniques including Peakforce Quantitative Nanomechanical Mapping, Kelvin probe force microscopy, conductive AFM, electric and magnetic force microscopy, Peakforce tunneling AFM etc.
2. Optical microscopy, Raman spectroscopy, scanning electron microscopy, and X-ray diffraction.



Hsiang-Chih Chiu, Associate Professor
Department of Physics,
chiu@ntnu.edu.tw
https://web.ntnu.edu.tw/~chiu/index.html

Background:
PhD in Physics, University of California, Riverside, CA, USA

Funding: Ministry of Science and Technology

Publications

"Correlation between Nanoscale Elasticity, semiconductivity, and Structural Order in Functionalized Polyaniline Thin Films", *Langmuir* (2020)

"Disease Antigens Detection by Silicon Nanowires with the Efficiency Optimization of Their Antibodies on a Chip", *Biosensors and Bioelectronics* 141, 111209 (2019)

"Frictional Characteristics of Nano-confined Water Mediated Hole-doped Single-layer Graphene on Silica Surface", *Nanotechnology* 30, 045706 (2019)