陳慧文 Winni Chen, Assistant Professor
Email: winnichen@ntu.edu.tw
Tel: 33669450
Specialty: Viral immunology, Vaccine/Antivirals discovery, Microbiology diagnostics, Infectious diseases epidemiology

Introduction:
My lab investigates viral pathogenesis and immunity, which encompass all aspects of infection of animal hosts, including the sequence of events from entry to shedding, the clearance or persistence of the virus, the immune response of the host and the subsequent occurrence of disease. In recent years, emerging viral diseases pose serious threats to humans and animals, and they have incurred tremendous financial and societal costs for decades. We currently focus on the study of avian influenza virus and coronavirus, and use chickens and mice as our research models.

蔡沛學 助理教授 PEI-SHIUE JASON, TSAI, Assistant Professor
Email: psjasontsai@ntu.edu.tw
Tel: +886 2 33661806
Specialty: Membrane Biology, Imaging, Reproductive Biology, Cell Biology.
For more detail, please see our lab webpage: http://jasonpstsai.wix.com/jt-lab-ntuvm

Introduction:
Our lab focuses on events that happen on cell membrane. We have two major research lines (1) Reproduction project: focus on gamete membrane surface modifications and protein rearrangements upon fertilization and (2) Kidney project: focus on the role of epithelial-mesenchymal transition (EMT) in chronic kidney disease (CKD).

Cell membrane is one of the most dynamic compartments of a cell. A constant reorganization of cell membrane surface components (e.g. proteins, lipids) is required to maintain vital biological phenomena. Our main interest is to understand how membrane surface dynamics affect (1) fertilization processes in mammals and (2) disease progression in kidney, and more importantly, how these processes are being regulated in vivo.

We apply multidisciplinary approaches including (1) 2D polarized and 3D cyst culture (stable cell lines and primary cell culture), (2) biochemistry, (3) proteomic, (3) animal models, (4) ex vivo organ culture system (5) advanced imaging system to visualize the dynamics of membrane activities.

Research Focuses:
Functional characterization of sulfhydryl oxidase 2/quiescin-6 (QSOX2) family protein on sperm and oocyte physiology.
The anti-oxidant effect of natural herbal compound Honokiol on Cisplatin-induced testicular toxicity

吳克強 教授 Keqiang Wu
Email：kewu@ntu.edu.tw
Tel：33664546
Specialty：Plant Molecular Biology
Introduction:
Epigenetic mechanisms such as histone modifications may have a decisive function in regulating plant responses to abiotic stresses. My research focuses on the involvement of epigenetic mechanisms in the plant response to environmental cues. Several recent reports have shown that different environmental stresses lead to altered methylation status of DNA as well as modification of nucleosomal histones. Understanding how epigenetic mechanisms are involved in plant response to environmental stress is highly desirable, not just for a better understanding of molecular mechanisms of plant stress response but also for possible application in the genetic manipulation of plants.

傅楸善 教授 Chiou-Shann Fuh, Professor
Email：fuh@csie.ntu.edu.tw
Tel：+886-2-33664888X327
Specialty：digital image processing, computer vision, pattern recognition, mathematical morphology, and their applications to defect inspection, industrial automation, digital still camera, digital video camcorder, surveillance camera, and camera module

Introduction:
color interpolation, fingerprint recognition, teacher tracking and video recording, camera test standard, automatic optical inspection, 3D reconstruction with X-ray images, 3D object measurement and recognition, fog removal, HDRI: High Dynamic Range Image, auto exposure, auto focus, auto white balance, color calibration, and color management.

丁照棣 副教授 Chau-Ti Ting, Associate Professor
Email：ctting@ntu.edu.tw
Tel：33662522
Specialty: Genetics, Genomics, Evolutionary biology, Molecular population genetics, Speciation

Introduction:
My research has motivated by the genetic and morphological diversity of the living creatures. In the past few years, our group has been focusing on understanding the genetics basis of species difference using Drosophila species as model organisms. With the advent of new molecular genetic and genomics tools, we have characterized the phenotype of hybrid male sterility mutants and demonstrated how the protein evolution contributes to fitness differences. Publications contributed by our group suggest that positive Darwinian selection after gene duplication is the major driving force shaping the diversification of sex-specific traits and speciation. Our current research project is being done to investigate the whole transcriptome profiling that unveils the expression differences between autosomal and X-linked loci. The results show the molecular basis of Haldane’s rule, a fundamental principle of speciation genetics. Currently, we continue on exploring genetics and genomic tools to characterize the genetic components manifest the sexual characters involving in mating behavior. The ultimate goal is to uncover the underlying genetics of mate recognition and speciation.

蘇國棟 教授 Guo-Dung John Su, Professor
Email：gdjsu@ntu.edu.tw
Tel：02-33663652
Specialty：
The research fields of Micro Optics Device Laboratory (MODEL) includes:
1. Optical Micro-Electro-Mechanical Systems (Optical MEMS)
2. Display Technology: Micro Imprinting Technologies for Micro Lenses
3. Optical Communication Components- Optical Switches and Variable Optical Attenuator
4. Display Vacuum Panels Research
5. MEMS Bio-sensors for Carbon-dioxide Gas

Introduction:
The room of the MODEL can be divided into two areas: optical design area and optical component measurement area. The optical design area has three high-speed dual-core LINUX workstations for simulating and calculating traditional optical lenses and diffractive optical elements. In addition, we have a large capacity file server for storing and auto-backing up the simulation and calculation results. We also have licensed commercial simulation software such as ZEMAX, TRACEPRO and OSLO, and we also develop our own optical simulation software for lens design. In the other area, the optical component measurement area has a floating optical table, storage shelf over optical table, red and infrared laser source, beam profiler, power meter, double-row ball bearing linear stages, DC power supply, full color CCD monitor, two 3-D microscope and an image processing PC, which are perfectly suitable for measuring micro-scale optical elements.

Feipei Lai, Professor
Email: flai@ntu.edu.tw
Tel: +886-2-33664924
Specialty: Medical Informatics: including Healthcare Information System R&D, Electronic Medical Records Datamining

Introduction:
Visiting students will join with our team to develop an electronic whiteboard and dashboard information system for the nursing stations at the National Taiwan University Hospital. The visiting students will go hiking with us every two weeks at the Yangmin National Park. You are welcome to join us to visit the Formosa Cypress trees of thousands year old at the Lala Mountain, Taoyuan. A visit to a very famous potter Li, Jen-Yao is also a must to appreciate the culture of Taiwan.

Snow H. Tseng, Associate Professor
Email: stseng@ntu.edu.tw
Tel: 02-3366-3695
Specialty:
Conventional approach mostly uses diffusion approx., Monte Carlo simulation, etc., mainly such problems are too complex to solve. By employing numerical techniques, such as the FDTD or PSTD algorithm, combined with parallel computing technology, we can actually study this problem by solving Maxwell's equations now. In particular, we are most interested in bio-optics research. Specific fields of interest include:
- Light Scattering simulations
- Investigating future innovative biomedical optics techniques
- Simulating the optica phase conjugation phenomenon
- Other electromagnetic problems
Introduction:
Our lab is not huge, which consists of a small group of motivated students each working on a specific problem of interest. We don't have regular weekly group meetings, students each work on their own pace and meet with the principal investigator individually. We are seeking for inspired and motivated students. Students learn basic programming skills and learn to implement simulations. Specifically, simulations to study electromagnetic problems and optics problems. Programming skills is helpful but not required to join our group. You can learn them here.

Topics to be learned in our lab includes:
1) Basic electromagnetism
2) Other simulation techniques
3) Monte Carlo simulation technique
4) Numerical simulations of Maxwell's equations
5) Application of Taylor's expansion
6) Scalar wave equation
7) Finite-difference time-domain technique
8) Pragmatic simulation method

李百祺 特聘教授 Pai-Chi Li, Distinguished Professor
Email：paichi@ntu.edu.tw
Tel：02-33663551
Specialty:
Our research includes:
*Physics
  -Wave propagation
  -Ultrasound
  -Photoacoustics
  -Shear wave imaging

*Systems
  -Native SW imaging
  -Hybrid architecture
  -Functional imaging
  -Customized sensors

*Imaging
  -Adaptive imaging
  -Software imaging
  -Quantitative assessment

Introduction:
Ultrasonic Imaging Laboratory was founded by Professor Pai-Chi Li in 1997, with the main research focus in biomedical electronics and imaging physics.

Integrating multi-disciplinary research efforts, exploring advanced biomedical technologies, and improving healthcare quality is the mission of this lab.

For further information, please visit our website: http://ultrasound.ee.ntu.edu.tw/
徐治平教授 Jyh-Ping Hsu, Professor
Email: jphsu@ntu.edu.tw
Tel: 33663022
Specialty: Nanotechnology, Electrokinetic phenomena

Introduction: Our recent study focused on theoretic modeling of the electrokinetic phenomena, including electroosmosis, electrophoresis, and diffusiophoresis, conducted in nano-scaled devices.

黃倬英副教授 Cho-ying Huang, Associate Professor
Email: choying@ntu.edu.tw
Tel: 3366-3733
Specialty: Biogeochemistry, forest health, optical remote sensing

Introduction:
The main goal of my lab is to use remote sensing to study the impacts of climate change along environmental gradients, which makes Taiwan an ideal model system. We have established 3 long-term forest monitoring sites across a wide precipitation gradient from 2000-4500 mm y⁻¹, and are collecting field data every 2-3 weeks. These field data will be valuable for validating large scale remote sensing studies. You are welcome to join us this summer if you like to explore the beauty of Taiwan's montane landscape.

吳嘉文副教授 Kevin C.-W. Wu, Associate Professor
Email: kevinwu@ntu.edu.tw
Tel: 02-3366-3064
Specialty:
1. Functional Nanoporous Materials
2. Biomass Conversion
3. Drug Delivery Systems
4. Photo-Electronic Applications

Introduction:
中孔徑奈米材料具有大表面積、規則結構、均勻孔徑等優點，在基礎研究及實際應用上都受到相當的重視。本研究室著重在於此類材料的合成與應用。

材料合成上，利用Bottom-up手法中的介面活性劑自組裝特性（Self-assembly）與Top-down手法中的半導體蝕刻技術（Lithography）製作先端功能性的奈米孔徑材料。此製備法包含了化學合成及工學製造。在基礎研究上，我們將會研究不同合成條件下對奈米結構的相轉移，不同孔洞結構的合成及構造解析、材料的功能化等相關題目。

應用方面，我們的材料目前著重在以下三部分的應用：
(1) 材料組：功能性奈米粒子的製備
(2) 能源組：木質纖維素的生質能轉換
(3) 生醫組：癌症細胞內藥物的傳遞與控制釋放

藉由基礎與應用研究，我們期待在發展新材料外，更希望能讓這些材料貢獻於人類健康與永續環境。
李建國 副教授 Chien-Kuo Lee, Associate Professor
Email: leeck@ntu.edu.tw
Tel: 0223955913
Specialty:
RESEARCH DIRECTIONS
1). Regulation of dendritic cell development
2). Regulation of type I IFN and TLR response
3). B cell differentiation

SELECTED PUBLICATIONS:

Introduction:
Signal transducers and activators of transcription (STATs) family proteins are critical regulators for cytokine signaling and immune modulation. In the past, we have elucidated the role of STAT3 in hematopoiesis, including granulopoiesis and B lymphopoiesis. We have demonstrated a negative role of STAT3 for G-CSF-mediated granulocyte development. Mice lacking STAT3 in their hematopoietic progenitors developed excessive neutrophils, and bone marrow cells were hyper-responsive to G-CSF stimulation (Immunity 2002 17:63). We later documented a positive role of STAT3 in B cell development. The numbers of B lineages, including pro-B, pre-B, immature B and mature B were significantly reduced in STAT3-/- mice, in part, due to reduced numbers of IL-7 responding progenitors in the BM (Blood 2006 108:3005). Recently, we have demonstrated a synergism for Flt3L (FL) and IFN-I in pDC development from common lymphoid progenitors (CLPs). Interestingly, IFN-I was induced in CLPs in response to FL stimulation, facilitating the up-regulation of Flt3 expression on CLPs and enhancing survival and proliferation of CLPs and their differentiation into pDCs (JEM 2013, 210:2515, PLoS One 2015).

In addition to hematopoiesis, we have found that STAT3 suppresses IFN-I-mediated response in a manner dependent on its N-terminal domain and independent of its function as a transcriptional factor. These results suggest that STAT3 may function as a negative regulator to fine tune IFN-I response and provide a therapeutic target for bacterial and viral infections. (J. Immunol. 2011, 187:2578).

Moreover, we also found STAT1, another member of STAT family proteins, controlled differentiation process of marginal zone B cells through regulating the expression of Blimp1, a master regulator of plasma cell formation (in submission).
Introduction: My name is CHENG Kuan-Chen (鄭光成), receiving my Ph.D. degree of agricultural and biological engineering at The Penn State University in 2010. I have more than 15 years of research experiences in the areas of microbial bioprocessing and fermentation.

I am now an associate professor in the Graduate Institute of Food Science and Technology, National Taiwan University since Aug, 2015. Before I returned to Taiwan, I was offered as a research associate in the Chemical and Environmental Engineering Dept. at The University of Arizona, where I also conducted research for the National Alliance for Advanced Biofuels and Bioproducts (NAABB). I am now an active member of the Institute of Biological Engineering (IBE), Agricultural Chemical Society of Taiwan, the American Society of Agricultural and Biological Engineers (ASABE), and the honor societies Gamma Sigma Delta (agricultural) and Alpha Epsilon (agricultural, food, and biological engineering).

http://kuanchencheng.wixsite.com/english

Introduction: In recent years, the research work of Fracture Lab aims on understanding and modeling the dynamic characteristics of piezoelectric materials. Furthermore, the investigation also focuses on the coupled problems of multi-fields. Theoretical group is focused on static analysis for layered problem for functional graded material, and also on dynamic problems for vibration and transient wave propagation. Experimental measurement is focused on the development of electronic speckle pattern interferometry optical full-field measurement technique, digital image correlation method, fiber Bragg grating dynamic sensing system and surface acoustic wave devices.

Manpower of the Lab: 1 Visiting Scholar, 4 Graduate Students for PhD Degree, 8 Graduate Students for Master Degree, 1 Secretary

Main Equipment
Electronic Speckle Pattern Interferometry (ESPI) System, Laser Doppler Vibrometer (LDV), laser displacement meter, Fiber Bragg Grating (FBG) Sensing System, Thermal Evaporator, Network Analyzer and Probe Station, Impedance Analyzer, Thermal Couple, Infrared Thermography, Ultrasonic Flaw Detector
**Ta-Te Lin, Professor**

Email: m456@ntu.edu.tw  
Tel: 02-33665331  

Specialty: The scope of laboratory encompasses areas in both theoretical development as well as practical applications. Some recent research topics are listed as follows:

**Theoretical Development:**
- Fast and robust ellipse detection in images
- Large-scale virtual reality
- Non-destructive measurement using low-field NMR
- 3D X-ray tomography and reconstruction
- Diffusion-reaction model for animal pattern formation
- 3D stereo vision algorithms

**Practical Applications:**
- Thermal-electric cooled cryomicroscope system
- Digital imaging system for fish length measurement
- Exoskeleton robots based on EMG signals
- Intelligent active surveillance system
- Automatic potting and transplanting systems for ornamental flower seedlings
- Imaging and monitoring system for honey bee behavior assessment
- Hyperspectral imaging and multispectral imaging
- Aerial surveillance imaging using drone
- Imaging system for plant growth measurement in a plant factory

[https://ttlin.bime.ntu.edu.tw/](https://ttlin.bime.ntu.edu.tw/)

**Introduction:**
Our laboratory focuses on the applications of image processing, mechatronics, modeling and computer simulation in agricultural and biological related researches. In recent years, we have made significant contributions in integrating imaging technology and mechatronic systems for both fundamental research and practical applications. More than 300 research articles have been published in international and domestic journals and conferences. The laboratory carried out research projects from government agencies such as National Science Council, Council of Agriculture, Ministry of Economic Affairs, and private organizations or companies such as Industrial Technology Research Institute, Automotive Research & Testing Center, etc. In addition, members of our research team have won many prizes in machine vision and robotic competitions. The theoretical background and experiences as provided by the research environment of the laboratory has nurtured our graduated students equipped with excellent capabilities as a bio-mechatronics engineer for interdisciplinary researches and professions.

**Wei-Ssu Liao**

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Tel: +886-2-3366-8712  

Specialty:  
Our research focuses on advancing the fundamental understanding of nanomaterials and applying this understanding to engineer nanomaterial surface properties, particularly those relevant to analytical, biological, and material problems. Currently, we have these projects running in the group:
Bench-Top Nanolithography
Nanomaterials for Biosensing, Chips, and Devices
Novel Analytical Platforms for Separation Science

Introduction:
Nanomaterials have received substantial interest from scientists and engineers in a wide range of fields, including chemistry, biology, medicine, materials science, electrical engineering, and physics. The demand to create miniaturized features has driven the development of novel bottom-up and top-down fabrication techniques. In order to capitalize on these advances, the next goal should be to focus on applying these techniques in a way that combines nanotechnology with other scientific fields. However, real-world applicability depends on the cost and convenience of these techniques. Therefore, our research focuses on straightforward and economical techniques. We are especially interested in the interfaces between biology and nanomaterials.

陳浩銘 Chen, Hao Ming
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Tel：02-33668710
Specialty：Our research is principally aimed to sustainable energy applications and artificial photosynthesis. On the other hand, we are designing and setting up an in-situ measurement with high energy characterization, such as EXAFS and XAS. As a result, our project will focus on synthesis of monometallic/bimetallic nanostructure with desired shapes, such as rods/wires, spheres, cubes, and multi-pod. Since catalytic properties strongly depend on their atomic geometry and bimetallic nature can significantly alter their electronic properties, these well-defined nanostructures and compositions will provide a tunable nature for CO2 reduction and artificial photosynthesis reaction. Furthermore, our project will focus on designing an in-situ cell which can simultaneously collect the XAS signal, illuminate with desired wavelength, apply various additional potential to facilitate the chemical reaction, and operate under aqueous environment. Since the photochemical property of the chemical reaction is greatly dependent on the band structure of the semiconductor, XAS is utilized to provide valuable evidence of the electronic structure of target atoms and in-situ measurements are made simultaneously to collect the spectra with/without illumination at the desired wavelength.

Introduction：Sunlight is an inexpensive, non-polluting, abundant and endlessly renewable source of clean energy. The amount of energy striking the Earth from sunlight is about ten thousand times more than the total energy consumed on this planet in the same time, and thence converting the solar energy into an easily usable form has attracted substantial attention in past decade.1 Photovoltaics (solar cell), the conversion of sunlight into electricity is a promising technology that allow the generation of electrical power on a very large scale. Although photovoltaics may be a candidate for solving the energy issue that our society is facing, to make power from photovoltaics competitive with fossil-fuel demand, the cost needs to be decreased by a factor of 2~5. Photovoltaics have grown rapidly in the past few decades, which can be regarded as an alternative electric power for meeting the requirement of clean energy in future life. However, I believe the utilization of solar energy should have a more significant way, it can be employed to generate chemical fuel rather than electric power. By learning from nature, photosynthesis may be able to efficiently generate energy, and utilize only earth-abundant materials and operate under mild situation. In the long term, photosynthesis technological approach to the producing and using of solar fuels provides an opportunity to mimic the essentially chemical reactions in naturally biological systems. Photosynthesis is a chemical process that converts water and carbon dioxide into organic compounds and oxygen, especially sugars (chemical fuels). Therefore, harvesting and storing of solar energy via chemical approaches, as natural performs through photosynthesis, is a desirable strategy for overcoming the challenge of solar energy applications.
白偉武 研究員/教授 Woei Wu Pai, Research fellow/professor
Email：wpai@ntu.edu.tw
Tel：02-33665252
Specialty：
Our laboratory works on surface sciences and nanoscale physics and chemistry. Our main specialty is scanning probe microscopy, including atomic force microscopy, scanning tunneling microscopy, and radio-frequency reflectometry scanning probe microscopy. In addition, we use many different surface analytical tools and thin film growth facilities to prepare and characterize samples in situ directly in ultrahigh vacuum. In combination with these experimental techniques and collaborative theoretical analysis, we are able to understand structure and properties of surfaces and their correlation.

Recent main focus is two-dimensional materials which include functionalized graphene (nitrogen doped), black phosphor (oxygen modified), and germanene (an germanium analog of graphene). We are particularly interested in adsorbate-modified surface structures and properties.

Introduction:
Our laboratory focuses on surface sciences and nanoscale physics and chemistry. Surface science is very important. As objects shrink in dimension its surface area to volume ratio increases and surface properties become crucial. Furthermore, a material often interacts with the outside world through its surface, e.g., catalytic reaction. The newly discovered two-dimensional materials such as graphene also requires serious surface characterization in order to understand its properties.

Our laboratory will provide perspective interns opportunities to learn and operate scanning probe microscopy either in air or in vacuum, or to operate chemical vapor deposition systems for 2D materials preparation. The interns will also learn skillful ultrahigh vacuum sciences. The perspective interns should have basic knowledges in physics, chemistry or engineering.

詹魁元 副教授 Kuei-Yuan Chan, Associate Professor
Email：chanky@ntu.edu.tw
Tel：3366-1772
Specialty：Please go to the lab website for more details
Introduction：Please go to the lab website for more details

潘建源 教授 Chien-Yuan Pan,Professor
Email：cypan@ntu.edu.tw
Tel：33662452
Specialty：Neuroscience, electrophysiology, cell biology, calcium imaging

Introduction：
Ca²⁺ signaling is involved in many cellular activities including the stimulus-secretion coupling. Many proteins can response to the changes in [Ca²⁺]i and we are interested in the functions of Na⁺/Ca²⁺ exchanger, calmodulin-like Ca²⁺-sensor proteins (CaSs), and Ca²⁺ channels. The exchanger is an antiporter and works in forward or reverse mode to transport Ca²⁺ out of or into the cell, respectively, depending on the electrochemical gradient of Na⁺ and Ca²⁺. CaSs have a structure similar to calmodulin and are involved in many cell activities such as exocytosis, ion channel modulation, membrane targeting etc. We are now characterizing the possible physiological effects of these CaSs in modulating the stimulus-secretion coupling.
The model systems used in my lab are primary cultured neurons and bovine chromaffin cells. To study the excitability of these cells, electrophysiology patch-clamping technique is established to monitor the membrane current, potential, and capacitance. To monitor the change in [Ca2+], we have established real-time fluorescence measurement technique and FRET to detect the signal emitted from Ca2+-sensitive dye and cameleon type protein, respectively. Recently, we have established a photoactivation system to stimulate neurons by applying an UV exposure at designated regions. Therefore, more experiments will be conducted to elucidate how the synaptic connections are regulated at single synapse level.

In the past several years, Professor Pan has collaborated with Professors Yit-Tsong Chen (Chemistry, National Taiwan University) and Chi-Dong Chen (Physics, Academia Sinica) to apply nanotechnologies to study neurotransmission. The conductivity of nanowire-field effect transistor (NW-FET) changes according to the electric field of the surroundings and the modifications at the surface. We have applied this technique to study biomolecular interactions to characterize the neuron activities. We have also used atomic force microscopy to characterize the membrane surface morphology changes due to the exo-endocytosis and apoptosis.

**Jaw-Lin Wang, Professor**

Email: jlwang@ntu.edu.tw  
Tel: 0233665269  

**Introduction**  
Our group is comprised of three labs.

The Biomechanics Lab is located at the Jan Shu Hall. Our laboratory has the capacity to design, develop as well as conducting evaluation analysis of medical implant and devices. We are able to provide dynamic materials testing of up to 4000N and with the use of fluorescent photograph and scanning electron microscope for micro-characterization and reporting of biological specimens.

The Materials Testing Lab is located at the Joint Teaching Building. The main purpose of the laboratory is to provide high loading (up to 10000N) failure analysis as well as continuous fatigue loading, reliability and spinal hybrid testing. The laboratory is also equipped with an x-ray machine to allow the capture and development of radiographs for experimental purposes.

The Precision Medical Device Testing Lab is located at the College of Engineering building. The laboratory is equipped with a BOSE ElectroForceR 3510 Test Instrument which features a 7500N dynamic force capability providing great versatility for a variety of mechanical safety, reliability and durability testing of medical devices. The laboratory also has the capacity to conduct Dynamic Mechanical Analysis (DMA) of engineered materials and components.

**Weib-Bor Tsai, Professor**

Email: weibortsai@ntu.edu.tw  
Tel: 3366-3996  
Specialty: Biomaterials, Tissue Engineering, Drug delivery
Introduction: Research Topic
Surface modification of biomaterials for improvement in biocompatibility: development of new surface modification techniques to enhance biomaterials' biocompatibility with respect to cell affinity or anti-fouling ability.

Cell responses to surface topographies: investigation of the effects of surface micro-/nano-metric topographies on cell morphology, adhesion, growth and differentiation in order to control cell behaviors and apply to tissue engineering.

Biomaterial development for tissue engineering applications: development of scaffolds in the form of hydrogels or nanofibers, that are incorporated with active biomolecules for cell growth and differentiation.

謝尚賢 教授 Shang-Hsien (Patrick) Hsieh, Professor
Email: shhsieh@ntu.edu.tw
Tel: 02-3366-4313
Specialty:
 Life-cycle Engineering Information & Knowledge Management
 Engineering Modeling and Visualization Techniques
 Computer-Aided Education

Introduction:
謝尚賢博士，現為國立臺灣大學土木工程學系電腦輔助工程組教授，兼工程資訊模擬與管理研究中心（簡稱BIM研究中心）主任。曾任國立臺灣大學國際事務處副國際長、土木工程學系副主任、及學生事務處課外活動指導組組長。謝博士目前也是中國土木水利工程學會資訊委員會的主任委員，並擔任國際土木與建築工程計算學會（International Society for Computing in Civil and Building Engineering）的理事（並曾擔任該學會之理事長）。

謝博士的研究興趣廣泛，主要在資訊技術在土木工程上之整合應用，包括：工程資訊與知識管理系統、工程計算模擬、創新工程教育、地震與防災工程、平行與分散式計算、物件導向系統開發等。他於1985年取得國立臺灣大學土木工程學系的學士學位，於1990年及1993年分別取得美國康乃爾大學土木與環境工程學系的碩士與博士學位，接著於美國普渡大學從事博士後研究兩年後回到臺灣服務。

Dr. Hsieh is a Professor in the Computer-Aided Engineering Division of Department of Civil Engineering at National Taiwan University (NTU), Taipei, Taiwan. He is currently serving as Director of the Research Center for Building & Infrastructure Information Modeling and Management in NTU’s Department of Civil Engineering, and Chairman of Information Technology Committee in Taiwan’s Chinese Institute of Civil and Hydraulic Engineering. He is a member of Board of Directors of the International Society for Computing in Civil and Building Engineering Since 1999 and served as the society’s President from 2006 to 2008. He has a wide range of research interests, including engineering & construction simulations, engineering information & knowledge management systems, innovative engineering education, parallel and distributed engineering computing, earthquake engineering and structural dynamics, and object-oriented software development.
Dr. Hsieh received his B.S. in civil engineering in 1985 from NTU, and his M.S. and Ph.D. in civil and environmental engineering from Cornell University, U.S.A. in 1990 and 1993, respectively. From 1993 to 1995, he worked as a Postdoctoral Research Associate in the School of Civil Engineering at Purdue University, U.S.A. He joined the Department of Civil Engineering at NTU in 1995 and had since served NTU as the Chief of Extracurricular Activities Section in Office of Student Affairs, Vice-Chairman of Department of Civil Engineering, and Deputy Dean for Office of International Affairs.

徐丞志 助理教授 Cheng-Chih Richard Hsu, Assistant Professor
Email : ccrhsu@ntu.edu.tw
Tel : +886-2-33663844
Specialty : Research Interests
Ambient Ionization Mass Spectrometry, Biological and Medical Mass Spectrometry Imaging and Analysis, Metabolomics and Proteomics of Human Microbiota

Honors and Awards
Mass Spectrometry Imaging (MSI) Award 2015

Career
2001-2005 B.S., National Taiwan University
2005-2007 M.S., National Taiwan University
2007-2008 Army Reserve Officer of Chemical Soldier, R.O.C.
2008-2009 Research Assistant, National Taiwan University
2009-2014 Ph.D., University of California at San Diego (UCSD)
2014-2015 Postdoctoral Research Associate, Stanford University

Introduction:
Research in my group uses analytical tools especially mass spectrometry to explore the chemistry of complex biological systems. Two of my main research interests in physical and chemical sciences are:

- implementing imaging mass spectrometry and ambient ionization mass spectrometry technologies for rapid detection of disease states.
- developing new methodologies to provide novel probes to microbe-microbial and host-microbial interactions in human body.
The goal of my laboratory is to be among the most pioneering and successful in the area of mass spectrometry analysis and imaging. In particular we will focus on technical advances that help develop better understanding of how microorganisms interact with human body. The ultimate goal is to provide efficient and practical solutions for early detection and therapies of diseases. To this end, we will collaborate with other researchers and clinics and create an environment that is conducive to innovative research.

實驗室將建構一個以快速質譜鑑定為核心技術的分析化學實驗室，結合常壓游離質譜法以及超高解析質譜儀所具備的快速且精確的兩大優勢，建立新式生物醫學分析法，獲得生物樣品中化學分子在空間與時間維度上的資訊。實驗室的研究工作分為兩大方向：

第一個方向是開發新的質譜分析技術，特別是在常壓下的大分子游離技術，建立高靈敏質譜分析法，並開發細胞的尺度下的質譜成像技術
第二是結合台灣的生醫社群，把質譜技術應用在基礎生物學研究以及醫療診斷上

建立台灣的臨床質譜資料庫，針對國人常見的疾病尋求早期診斷的方法
第二是著眼於人體與微生物的關係，探索相關疾病（例如肥胖）與人體菌群之間的化學與生理的作用機制

陳穎練 助理教授 Ying-Lien (Joseph) Chen, Assistant Professor
Email: ychen28@ntu.edu.tw
Tel: 02-33661763

Specialty: The Chen lab focuses on investigating molecular genetics, pathogenesis, and antifungal drug development of human and plant fungal pathogens. We study these subjects in human fungal pathogens: Candida species and Cryptococcus species, which cause severe bloodstream infections (Candidemia) and cryptococcal meningitis in patients with immunocompromised conditions such as AIDS or cancer individuals. Without appropriate treatment, these infections often result in 50% death rate. In addition to basic studies, our lab also concentrates on antifungal drug development.

In studying plant fungal pathogens, we focus on the molecular biology and pathogenesis of Fusarium species including genome sequenced F. oxysporum, F. graminearum, F. verticillioides, and F. solani isolates, which are among the most important phytopathogenic and toxigenic fungi. Fusarium species have broad plant hosts and caused important diseases in Taiwan including Banana yellows(F. oxysporum f. sp. cubense) and strawberry blight (F. oxysporum f. sp. lycopersici). In addition to plant hosts, Fusarium species such as F. solani also infects humans. Therefore, we will address the evolutionary roles and relationship between plant and human Fusarium species.

Introduction: Please visit my website below for further information.
http://homepage.ntu.edu.tw/~ppm/ppm_english/Faculty&Research/tc_13_Chen,Ying-Lien.html

Other experience and professional memberships
2010-present Associate Member of Faculty 1000
2014-present Editorial board member: Journal of Bacteriology and Mycology (9.27.2014 invited)
2015-present Editorial board member: BAOJ Microbiology (3.30.2015 invited)
Introduction:
Biocomposite Materials Science and Technology Lab was established in mid-2012. The major research scopes of the Lab involve investigating the characterization, processing, and performance of bio-based composite materials. The specific research topic is to apply biomaterials such as cellulose and lignin as raw materials combined with the novel technology to develop and innovate advanced fibrous materials and bio-based composite materials. The objects of the Lab intend to achieve the means to effectively and efficiently qualify pragmatic performance of biomaterials, and apply the theoretically and experimentally developed knowledge to improve and expand the industrial utilization of bio-based composite materials, which have been long renown as green materials. Meanwhile, physical and mechanical properties of bio materials, particularly the viscoelastic behavior associated with long-term performance of materials, are our other research of focus.

Introduction:
The major research interest of our lab is to understand the process of nuclear reprogramming by somatic cell nuclear transfer (SCNT, also called animal cloning). We also study the biology of oogenesis and embryogenesis, as well as stemness of embryonic stem cells.

Introduction:
My research program focuses on the chemistry and bio-functions of plant and fungal secondary metabolites. I employ multidisciplinary approaches coupled with developing novel methods (both experimental and theoretical) to study the metabolic system of specific products (metabolites) production in crops, medicinal plants and fungi, as well as elucidating the chemical structures and the mechanism(s) of action of phytochemicals that exhibit specific biological activity of interests. Techniques employ comprising the utilization of RT-PCR, Western blotting, flow cytometry, 2D-gel electrophoresis, HPLC, HPLC-MS and others.
葉汀峰 副教授 Ting-Feng Yeh, Associate Professor
Email：stfyeh@ntu.edu.tw
Tel：02-33664655
Specialty：Wood Chemistry, Cell Wall Biosynthesis, Ligocellulosics Utilization.
Introduction：Lignocellulose from woody cell wall is a renewable resource and a promising fossil-fuel alternative for industrial purposes. Its complex structure is mainly composed of cellulose, hemicelluloses and lignin, and all of these come from the carbon sequestration process via plants’photosynthesis. The ratios and structures of these three components vary by plant species, and these dramatically affect the energy input and chemical consumption for the lateral application. Understanding of the complexity of the wood formation process could lead us to engineer tailored biomass suitable for specific industrial purposes.

謝旭亮 教授 Hsu-Liang Hsieh, Professor
Email：hlhsieh@ntu.edu.tw
Tel：02-33662540
Specialty：Studies of the molecular mechanisms underlying the integration of light and jasmonate signaling pathways by molecular and genetics approaches.
Introduction：Light is one of the most important environmental factors affecting plant growth and development. In particular, the seedling development is sensitive to the combinatorial effects of light and various phytohormones, including jasmonates. We mainly focus on light signal transductions in Arabidopsis and try to understand the integration of light and jasmonate signalings in which how this interaction affects seedling growth and development at the molecular level. Thus, we center on the functional investigation of FIN219/JAR1 using various approaches, hoping to determine the regulatory relationship between FIN219 and COP1, a repressor of photomorphogenesis in darkness, and the functional roles of FIN219/JAR1 in both light and jasmonate signaling pathways. At present, we have established the functional relationship of FIN219 and COP1 in the regulation of hypocotyl elongation of Arabidopsis seedlings in response to far-red light.

In addition, light also affects the growth of fruits, including the accumulation of lycopene in tomato fruit. We try to understand the molecular mechanism underlying the accumulation of lycopene in the fruit of heat-tolerant tomato lines regulated by light. Tomato transgenic lines affecting the levels of lycopene in fruit have been established, and the molecular studies are undertaken now, hoping to generate the tomato lines with high economic value and enriched in lycopene content of fruit, leading to great benefits to human health.

黃振康 副教授 Chen-Kang Huang, Associate Professor
Email：ckhuang94530@ntu.edu.tw
Tel：+886-2-33665351
Specialty：熱流與能源工程/ Thermal and energy engineering, 空調與空氣清淨/ Air conditioning and cleaning, 計算流體力學/ Computational Fluid Mechanics
Introduction：
流體力學/ Fluid Mechanics
電子學/ Microelectronics
MATLAB之工程應用/ Application of MATLAB in engineering
萬灼華 副教授 Cho-Hua Wan, Associate Professor
Email : chwan@ntu.edu.tw
Tel : 02-33663885
Specialty:
Laboratory animal medicine, Lab animal disease diagnosis, Diagnostics improvement/development,
Pathogenesis of infectious diseases.

Introduction:
Area of Laboratory Animal Medicine/Comparative Medicine covers multiple subjects in lab animal field,
including laboratory animal science, experimental application, animal models, lab animal management,
lab animal disease, lab animal diagnostics, lab animal regulations, and lab animal welfare. My research
has focused on investigating the pathogenesis of novel rodent infectious diseases and developing the
diagnostic assays for infectious agents.

Research Interests: Rodent paroviruses, Rodent infectious diseases, Diagnostics improvement/development, Pathogenesis of infectious diseases.

王宗興 助理教授 Tsung-Shing Andrew Wang, Assistant Professor
Email : wangts@ntu.edu.tw
Tel : +886-2-33668711
Specialty:
organic chemistry, biochemistry and chemical biology

Introduction:
In my lab, we use organic chemistry, biochemistry and chemical biology to understand fundamental
scientific questions and transfrom what we learn into useful applications.

Research Interests
* Development of New Antibiotics and Antibacterial Agents
* Bacterial Virulence Factors
* Host-Pathogen Interactions
* Design of New Functional Reagents to Study Biological Problems

詹長權 教授 Chang-Chuan Chan, Professor
Email : ccchan@ntu.edu.tw
Tel : 33668082
Specialty:
The lab focuses on (1) the relationship between air pollution and respiratory diseases, (2) exposure and
risk assessments on air pollution, (3) exposomics, (4) epidemiology study on occupational health
problems. Lab devices and equipment are provided, such as ICP-MS, HPLC, and GC GC-TOFMS.

Introduction:
The lab focuses on (1) the relationship between air pollution and respiratory diseases, (2) exposure and
risk assessments on air pollution, (3) exposomics, (4) epidemiology study on occupational health
problems. Lab devices and equipment are provided, such as ICP-MS, HPLC, and GC GC-TOFMS.
**郭柏秀 副教授 Po-Hsiu Kuo, Associate Professor**
Email : phkuo@ntu.edu.tw
Tel : 02-33668015
Specialty : Genetic Mapping and Genomics study, Whole-genome Association and Quantitative Genetics, Bioinformatics, Psychiatric Epidemiology, Substance Use and Mood Disorders, Adolescent Mental and Behavioral Problems, Obesity and Metabolic Abnormality

**Introduction**

The research interests in Dr. kuo's lab include several aspects, a) gene-mapping for complex traits, b) genomic and bioinformatics studies to uncover underlying mechanisms for psychiatric disorders (especially mood disorders), c) children and adolescent sleep, mood, and behavioral problems, d) obesity and metabolic abnormality. For the first two aspects, different clinical, genetic, and experimental studies are conducted for mood disorders and mood related traits to investigate their underlying pathogenesis. Moreover, a longitudinal study is employed to investigate the causes and correlates of youth mental health. Finally, clinical and metabolomics analyses are performed to evaluate characteristics of obesity and its related features.

**周元昉 教授 Yuan-Fang Chou, Professor**
Email : yfchou@ntu.edu.tw
Tel : 33662690

**Specialty** : 
1. Solid mechanics 
2. Vibration 
3. Wave propagation 
4. Acoustics 
5. Microfabrication (MEMS) 
6. Signal processing

**Introduction**

The vibration laboratory of Mechanical Engineering department studies mechanical vibration and elastic waves. This laboratory has both testing and fabrication equipment. Its research emphasizes ultrasonic wave related topics. Research tasks include design, analysis, and fabrication. Piezoelectric materials are widely adopted for developing sensors and actuators. Most of the developed devices such as ultrasonic atomizers, RF filters, and resonators were fabricated with MEMS technology.

**林敬哲 教授 Jing-Jer Lin, Professor**
Email : jingjerlin@ntu.edu.tw
Tel : 23123456 ext 88208

**Specialty** : telomere, telomerase, aging, chromosome, cancer, chemical biology

**Introduction**

Telomeres are the physical ends of eukaryotic linear chromosomes. They are important for the maintenance of chromosome integrity. One of the main goals of my research is to understand the structure and function of telomeres. Using budding yeast Saccharomyces cerevisiae as a model organism, the function of telomere associated proteins are analyzed. Specifically, the role of telomere binding proteins on telomerase regulation is analyzed. Since telomerase activity is implicated as an
essential step for tumor formation in human, my laboratory is also interested in identifying agents that inhibit telomerase activity.

Normal human cells cannot divide indefinitely. They divide ~60-80 times and then enter a non-dividing state termed replicative senescence. Telomere shortening is considered to be the cause of senescence. Senescence can also be induced by different stresses. Previous we have identified several genes with alteration of their expression cause senescence. We are also interested in analyzing the mechanism of how these genes are involved in senescence.

In addition to telomere-related researches, we are also interested in applying chemical approach to address biological questions. A series of mechanism-based chemical probes for labeling selected protein families including protein tyrosine phosphatases, protein kinases, and serine proteases were designed and synthesized. We are interested in developing these chemical probes as technical platforms for biological analysis.

賴亮全副教授 Liang-Chuan Lai, Associate Professor
Email：llai@ntu.edu.tw
Tel：23123456 # 88241
Specialty：Cancer biology, Genomic, Gene regulation, Hypoxia, Reoxygenation, Long non-coding RNA, microRNA, DNA methylation

Introduction:
The major research interests in my lab are using genomic approaches (microarrays & next generation sequencing) and genetic tools to explore the molecular mechanism of carcinogenesis. Approaches to understand the mechanism of cancer genome include investigating gene expression profiling, copy number variation, single nucleotide polymorphism, epigenetics (including DNA methylation, microRNA, and long non-coding RNA) in several transformed cells, such as lung cancer, breast cancer, and esophageal cancer. For examples, we used microarrays to reveal the dynamic genomic response upon reoxygenation in breast cancer MCF-7 cell line. We identified 127 differentially expressed genes, of which 53.1% were up-regulated and 46.9% were down-regulated upon reoxygenation. Pathway analysis revealed that the HIF-1-alpha transcription factor network and validated targets of C-MYC transcriptional activation were significantly enriched in these differentially expressed genes. Among these genes, we focused on human N-MYC down-regulated gene 1 (NDRG1), which is associated with a variety of stress and cell growth-regulatory conditions. We found out that NDRG1 is involved in tumor adaptation to reoxygenation by affecting cell migration.

余明俊副教授 Ming-Jiu Yu, Associate Professor
Email：mjyu@ntu.edu.tw
Tel：+886223123456~88216
Specialty：Kidney Physiology and Hepatitis C Virology

Introduction:
The Perspective
We are working to understand how biological processes are regulated in the kidneys and how dysregulation in these processes causes diseases. In the case of hepatitis C virus, interrupting the regulatory processes offers therapeutic strategies. Our alumni are pursuing higher academic degrees or working in the government or industry in Taiwan and in the United States.
The Science
Proteins play many important functions in biology. Protein functions can be regulated by post-translational modifications such as phosphorylation at amino acid residues: serine, threonine or tyrosine. We use strategies of systems biology to identify the modified amino acid residues and study their functions using tools of biochemistry, cell and molecular biology.

The Group
We are a group of scientists at various levels: high school students, medical students, MS and PhD students. Every summer, the lab is converted to an English-speaking lab in order to host 1-2 high school students from the Taipei American School and from the United States. You should feel at home with us.

陳敏慧教授兼所長 Min-Huey Chen, Professor, Director
Email: minhueychen@ntu.edu.tw
Tel: 886-2-3123456 ext 67701
Specialty: Professional specialties
Restorative and Esthetic Dentistry
Stem Cell Research
Tissue Engineering
Biomaterials Development

Main Research Interests
Translational Medicine in Organogenesis
1. Epithelial-mesenchymal interactions in dental organogenesis
2. Neurogenesis in dental organogenesis
3. Mechanism of organogenesis in periodontal tissues

Stem Cells Tissue Regeneration
1. Cartilage Regeneration
2. Salivary Gland Regeneration
3. Tooth Regeneration

Development of Biomaterials
1. Development of dental nano composites (2 patents, 4 filing)
2. Development of dental implant

Introduction:
EDUCATION AND POSITIONS HELD:
Ph D  Institute of Biomedical Engineering, Chemical and Materials, School of Engineering, University of Auckland, New Zealand (1996-2000)
MS  Executive MBA Program in International Business Management, College of Management, National Taiwan University, Taiwan R.O.C. (2011-2013)
DDS  School of Dentistry, College of Medicine, National Taiwan University (1976-1982)
Research Fellow of Case Western Reserved University Teaching Hospital
Research Fellow of the University of Auckland, New Zealand
Chairman, Division of Esthetic Restoration, Department of Dentistry, NTUH (2002 till now)
Director and Professor, Graduate Institute of Clinical Dentistry, School of Dentiatry, National Taiwan University (2015 till now)
徐源泰 教授兼生農學院院長 YuanTay Shyu, Professor and Dean
Email：tedshyu@ntu.edu.tw
Tel：33664850
Specialty：food biotechnology and microbiology

Introduction：food biotechnology and microbiology, fruit and vegetable processing

劉宗德 Tsung-Te Liu
Email：ttliu@ntu.edu.tw
Tel：33661818
Specialty：Integrated Circuit and System Design, Biomedical and Communication Electronics

Introduction：My research interests involve the design of reliable and energy-efficient integrated circuits and systems for biomedical applications and wireless communications, with emphasis on

Energy-efficient circuit architectures and optimization techniques
Analyses of VLSI algorithms, communication and computation systems
Design methodologies for emerging devices and material

王培育 助理教授 Pei-Yu Wang, Assistant Professor
Email：wangpeiyu@ntu.edu.tw
Tel：02-23123456#88058
Specialty：Aging, Neurobiology

Introduction：Calorie restriction and the aging brain
Understanding aging is a major challenge of our time, given demographic trends and the predicted burdens of an elder society. Studies investigating age-related diseases such as neurodegenerative diseases have already yielded significant insights into human senescence. Calorie restriction (CR) has emerged as the most effective intervention prolonging healthy lifespan across species, from yeast to flies to mammals. Although understanding of the role of CR in brain functions is still in its infancy, recent studies have provided some enlightenment. In a number of epidemiological studies, CR has been shown to decrease the risk for both Parkinson’s and Alzheimer’s disease. In animal models, CR is able to reduce the cognitive decline associated with Alzheimer’s disease and improve toxin-induced motor and memory dysfunctions. These observations highlight the potential for using CR-related molecules/pathways as targets for treating age-related disease. In my lab, we undertake a systematic study of the action of CR on the aging brain. Understanding the molecular basis of the effects of CR on cognition will help us to protect neurons from insults and promote mental fitness.

Development of anti-aging interventions
We have previously used high throughput gene expression profiling to explore the underlying mechanism of CR-induced lifespan extension. Several novel longevity genes were identified and they were potential targets for developing CR mimetics. In addition to the genetic approach, we also screened natural products (Chinese herbs) for their ability to delay the aging process and to treat neurodegenerative disease. The anti-aging effects were evaluated in mutant mice and flies having Alzheimer’s disease-, Parkinson’s disease- and Huntington’s disease-like phenotypes. These newly developed interventions are likely to benefit people with not only a longer lifespan, but also a healthier lifespan.
Yu-Wen Ting, Assistant Professor
Email: pywting@ntu.edu.tw
Tel: 02-3366-1878
Specialty:
1. Functional food processing
2. Novel food processing technology
3. Oral delivery system
4. Digestion modeling and modulation
5. Food ingredient replacement

Introduction:
Broad range of plant-origin bioactive compounds, such as lipids, polysaccharides, peptides, polyphenols, flavors, and pigments, have been widely reported for their efficacy in biological process modulations, by which better physiological conditions could be achieved. Moreover, many of the plant-based bioactives are much less aggressive when compare to synthetic drugs and, thus, could be continually consumed as dietary supplement to prevent the development of chronic diseases, such as cardiovascular diseases, cancers, neurological dysfunctions, age-related macular degeneration, inflammation and oxidation induced cellular damages. To utilize such valuable natural compounds from plants, many of the new food processing technologies recently emerged to meet the demand for better preservation of functional constituent from natural sources with reduced operational time, reduced organic solvent consumption, less environmental impact, higher yields and quality, and easier fit to the manufacturing processes. Currently, novel technologies including ultrasound, microwave, supercritical fluid, pulsed electric field, extrusion, ohmic heating, accelerated solvent, high hydrostatic pressure, and enzymatic technology were incorporated to rapidly and efficiently process bioactive ingredients when being incorporated into food products. Our lab focus on researches related to Functional food processing, from which the oral bioavailability and efficacy of bioactive ingredient could be maximized. Through realizing the physicochemical properties of bioactive ingredients, the optimal encapsulation system and processing method could be selected to incorporate such ingredient to the food matrix. The research in functional food is not limited to the development and application of functional ingredients, but also include the preservation and replacement of certain nutrition in the food product.

Nien-Tsu Huang, Assistant Professor
Email: nthuang@ntu.edu.tw
Tel: 0233661775
Specialty: Bio-Optofluidic System Lab is located at MD 702 in the department of Electrical Engineering and the graduate institute of Biomedical Electronic and Bioinformatics at National Taiwan University, Taipei, Taiwan. Our lab is focusing on developing integrated electrical, optical and mechanical miniaturized fluidics and sensors for biological applications, such as cellular biology, drug screening, and disease diagnosis.

Introduction: Nien-Tsu Huang received his B.S. in Mechanical Engineering and the M.S. in Applied Mechanics from National Taiwan University, Taipei, Taiwan, in 2003 and 2005. He received the Ph. D. degree in Mechanical Engineering at the University of Michigan, Ann Arbor, in 2012. During his postdoctoral training in C.S. Mott Children’s Hospital at the University of Michigan, he developed integrated microfluidic devices and customized optical system for investigating immune system of pediatric sepsis patients. Since then, he joined National Taiwan University as an assistant professor in 2013. His current research focuses on developing microfluidic devices for on-chip cellular manipulation, property detection, DNA microarray, and Localized Surface Plasmon Resonance (LSPR) biosensing.
**Wu En Si, Assistant Professor**

Email: joshuagoh@ntu.edu.tw  
Tel: 02-23123456-88022  
Specialty: Cognitive Neuroscience, Decision-Making, Aging, Culture, fMRI, MRI

Introduction:  
Josh obtained his Doctoral degree in Psychology at the University of Illinois at Urbana-Champaign, USA. In his graduate research, he investigated how aging brain biology and culture-related life experiences are associated with object, scene, and object-scene binding neural activity during perceptual processing in young and older Westerners and East Asians. He then further did his postdoctoral fellowship with the Laboratory of Behavioral Neuroscience in the National Institute on Aging, Intramural Research Program, USA. There, he continued his work on age-related effects on the brain and mind with the Baltimore Longitudinal Study of Aging (BLSA), investigating individual differences in age-related changes in executive processing and the corresponding structural and functional neural correlates, as well as initiating studies on value-based decision-making in older adults.

Josh is now the Principal Investigator of the Brain and Mind Laboratory at the Graduate Institute of Brain and Mind Sciences, National Taiwan University. He continues to work on better understanding of the human brain and mind, and how they are affected by biological and experiential factors. Specifically, his interests include the cognitive neuroscience of aging, individual differences and cross-cultural neuroscience, and decision-making.

**Chou, Cheng-Ying, Associate Professor**

Email: chengying@ntu.edu.tw  
Tel: +886-2-3366-9689  
Specialty:  
We dedicate efforts in biomedical related researches. The research topics include X-ray phase-contrast imaging, positron emission tomography (PET), photoacoustic tomography (PAT) and nanoparticle drug delivery in tumor tissues, as well as development of test kits for fast screening abused substances. In order to accelerate the computational speed, we employ the state-of-the art graphics processing units (GPU) developed by NVIDIA and program our codes on CUDA platform. This can enhance the computational speed by dozens or hundreds of times. We cordially invite anyone who is interested in advancing modern medical imaging techniques or parallel computing to join this project.

Introduction:  
We dedicate our efforts in biomedical related researches. The ongoing research subjects include development of image reconstruction algorithms for X-ray phase-contrast imaging, positron emission tomography (PET), and photoacoustic tomography (PAT), as well as simulation of nanoparticle drug delivery and development of a fast screening kit for abused substances.

Professional Skills  
The members will be trained with imaging physics of various medical imaging modalities and the associated reconstruction algorithms. The parallel computing programming will be implemented on the NVIDIA CUDA platform to integrate softwares with imaging hardwares and to facilitate their applications in practice.  
Immunooassay analysis, development of fast screening kits and biosensors.  
The research topics cover the fields of biosensing, bio-mechatronics, information technology, electrical engineering and biomedical engineering. Welcome to join us.
潘國隆 教授 Kuo-Long Pan, Professor
Email : panpeter@ntu.edu.tw
Tel : 33665569
Specialty : fluid physics, combustion and energy, computational fluid dynamics, propulsion
Introduction : Fluid Physics Lab: Study the fundamentals of fluid flows, such as multiphase and reacting flows, as well as relevant scientific disciplines and engineering applications

丁詩同 教授 Stone Ding, Professor
Email : sding@ntu.edu.tw
Tel : 02-33664175
Specialty : Current position:
Deputy Executive Secretary, Board of Science and Technology, Executive Yuan, Taiwan, ROC
Chairman/Distinguished Professor, Department of Animal Science and Technology, National Taiwan University (NTU), 2013-present
Distinguished Professor, Institute of Biotechnology, National Taiwan University, 2013-present
Visiting Professor, University of Tsukuba in Japan, 2012-present
Research Councilor for Council of Agriculture, Taiwan Government
Research interests: My primary research goals are to understand the mechanisms by which nutrients regulate gene expression related to body composition and human health. Cell culture, animal, and transgenic animal models are used regularly in our research. Molecular biology techniques, microarray, proteomics, RNAi, lentivirus transgenic cells and image analysis are the techniques regularly used to answer our questions on how nutrients (polyunsaturated fatty acids) affect gene expression and function, improve body composition in animals, and reduce obesity and fatty liver in human. I am also working on differentiating and utilizing adipose derived stem cells for treating human diseases.

Selected Journal Publications in 5 years
tenin signaling in mice. Bone. In Press. (SCI, IF =3.8)
在2000年回國任教，正好面臨世紀交替，氣象不凡。對我而言一切都是新穎，新的研究環境、新的教學責任，當然也充滿了新的希望。憶想當年得知研究創始經費是多麼微薄時的失望與恐懼，至剛回國設立分子生物研究室，接受各方師長與同學的盛情幫忙，才深深地感受到台灣的濃郁人情，原可以支持我們戰勝一切。是了！每一位新老師都需要很多的幫助才能好好立足。第一年，本系垃圾還要自己買環保署的垃圾袋，新老師無公家經費，所以被迫捐了一些垃圾錢，最近學校又開始要老師自行付費處理垃圾，勾起十年前深刻的記憶。大倒不是沒錢，新老師要想方設法才能得到補助，這個過程也是協助我們成長的作法。在台大的日子是非常精彩的，不管是年少多夢的學生時期，或是“想要”身負重任的青壯時期。幾年來，7-11般的工作時間表，最大的收穫，不只是看著研究成果不斷地發表時的成就感，更是看著學生們由稚嫩到成熟的滿足感，付出與收穫之間是公平的。期待自己能隨時自信地感到「我的生命一生是現在尚精彩」。

沈麗娟 副教授 Li-Juan Shen, Associate Professor
Email：ljshen@ntu.edu.tw
Tel：02-33668792
Specialty：Clinical Pharmacy and Pharmacy Administration.

曾賢忠 助理教授 Shiang-Jong Tzeng, Assistant professor
Email：sjtzeng@ntu.edu.tw
Tel：02-23123456#88314
Specialty：Immunology and Immunopharmacology

Vaccinology
Translational research on immune related disorders for developemnt of novel therapeutics, e.g. systemic lupus erythematosus.

盧彥文 副教授 Yen-Wen Lu, Associate Professor
Email：yenwenlu@ntu.edu.tw
Tel：+886-2-3366-5346
Specialty：基因育種晶片、生物實驗室晶片、仿生學、奈米製程在相變的應用
Introduction:

在ALCom（应用逻辑与计算）实验室，我们应用逻辑和计算方法来自动（硬件/软件）系统构造。

江介宏 教授 Jie-Hong Roland Jiang, Professor
Email: jhjiang@ntu.edu.tw
Tel: +886 2 33663685
Specialty: Electronic Design Automation, Logic Synthesis, Formal Verification, Computation Model, Optimization

林琬琬 教授 Wan-Wan Lin, Professor
Email: wwllaura1119@ntu.edu.tw
Tel: 23123456 #62221
Specialty: 1] Innate immunity of TLRs, NLRs and CLRs
2] Host response to pathogens
3] Novel molecules in regulation of keratinocyte differentiaion and skin cancer
4] Regulating mechanisms for cell death coming from death receptors, ER stress, DNA damage, and inflammasome
5] Novel functions of decoy receptor 3

Introduction:

We have been working on inflammation-related signaling pathways, gene regulation, and cancer development for many years. Besides exploring the molecular action mechanisms of several anti-inflammatory drugs, we demonstrated ligand-dependent and -independent action mechanisms of NOD2 in regulating TLR4 signaling and responses in macrophages. Regarding statins, which are HMG-CoA reductase inhibitors and widely used as lipid-lowering agents, we identified several novel anti-inflammatory and cell protective actions of statins, and provided valuable information to support their potential therapeutic uses in inflammatory diseases. Decoy receptor 3 (DcR3), a soluble receptor belonging to TNFR, is a biomarker of cancer progression. In our lab, we found DcR3 can exert inflammatory actions to modulate cancer progression via decoy and non-decoy action manners. Cell death is an important issue to control cellular homeostasis and biological functions. Among several types of programmed cell death, we have demonstrated the signaling cascades involved in necroptosis, parthanatos and autophagic death. In this respect, novel functions of caspase-8 in keratinocyte differentiation and autophagy induction were reported.
李士傑 教授 Jeff, Shyh-Jye Lee, Professor
Email：jefflee@ntu.edu.tw
Tel：02-33662457
Specialty：Developmental Biology; Signal Transduction; Zebrafish Biology

Introduction：My lab is using zebrafish as a model to study signal transduction during embryonic development. We are also generating human disease model in zebrafish to investigate disease mechanisms.

白奇峰 助理教授 Chi-Feng Pai, Assistant Professor
Email：cfpai@ntu.edu.tw
Tel：(02)3366-2585
Specialty：
1. Spintronics
2. Condensed matter physics
3. Emergent and novel materials
4. Emergent memory engineering
5. Quantum engineering

Introduction：
Our lab focuses on both the growth and the measurements on emergent materials systems as well as their fabricated devices, especially for those related to magnetism. We have the leading experience in probing various kinds of magnetoresistances (MR) and other spin-related phenomenon such as the spin Hall effect (SHE). Currently our major research topics are, but not limited to:

A. Magnetic heterostructure growth and characterization
Thin-film ferromagnetic materials deposited in adjacent to other transition metals and/or oxide layers can induce interfacial magnetic anisotropy. For instance, the ~1nm FeCoB alloy that is sandwiched between a Hf buffer layer and a MgO capping layer demonstrates perpendicular magnetic anisotropy (PMA). This PMA can be further tuned by post-annealing process, applied strain/stress, as well as applied voltage across the heterostructure.

B. Spin Hall effect induced spin transfer torque and its applications
The spin Hall effect (SHE) in heavy transition metals has been experimentally proved to be strong enough to induce magnetization switching and magnetic oscillations in the adjacent ferromagnetic layer via spin transfer torque (STT) mechanism. The spin Hall angle, which roughly describes the sign and the magnitude of the charge-to-spin conversion efficiency, is about 0.06, -0.15, and -0.30 for Pt, Ta, and W, respectively.

Other novel materials systems such as topological insulators have also been proved to possess giant spin Hall effect, with spin Hall angle possibly greater than unity (>100%). Our research aims for materials systems with high spin Hall efficiency and their potential applications, for instance in the magnetic random access memory (MRAM) industry.

Selected Publications
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Introduction: Welcome to Biochemical Sensing Systems Laboratory! Our research utilizes a wide range of micro/nanoscale technologies to approach affordable, sensitive, specific, user-friendly, rapid and robust, equipment-free and deliverable to end-users (ASSURED) diagnostic applications.

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