Chou, Tse-Chuan (周澤川 教授)

Professor

B.S.	Chemical Engineering, National Cheng Kung University	1966
M.S.	Chemical Engineering, National Cheng Kung University	1969
Ph.D.	Chemical Engineering, Purdue University	1975

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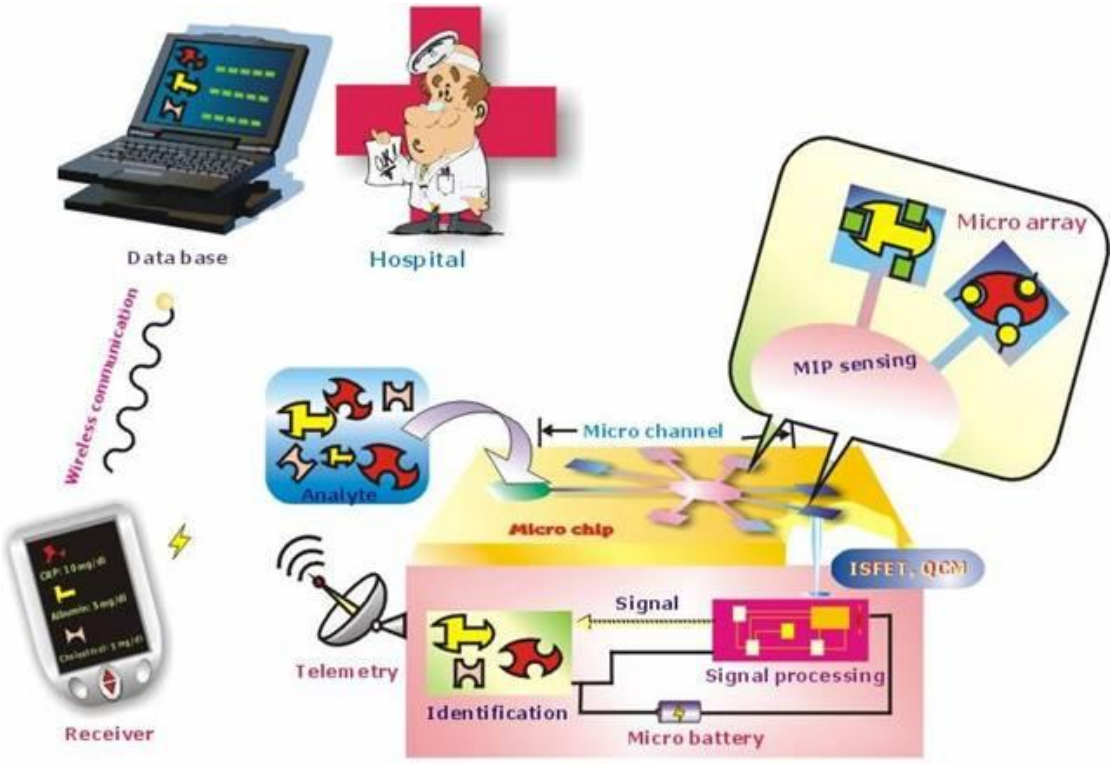
Research Interests:

Professor Tse-Chuan Chou is the chief investigator for one of the “Programs for Promoting Academic Excellence in Universities”. He leads a highly successful team combining faculty members and consultants from 8 universities (NCKU, NTU, NYUST, NTUST, NUK, THU, ISU, and KSUT) in Taiwan and the Case Western Reserve University in the U.S.A. The unique strengths of the participating universities are, under the guidance and leadership of Prof. Chou, focused on a project to create a Molecularly Imprinted Micro-Sensing Chip (MIMSC). The goal of the project is to develop imprinted microsensing chips, with supporting technologies such as wireless charging micro-battery, microfludics and signal processing, to be integrated into a molecular sensor.

For the past 30 years, Professor Chou also has played a prominent role in introducing and developing new chemical engineering technologies in Taiwan. His expertise in catalysis and electrochemical engineering has attracted much attention from the international community. Several companies from the U.S.A., Japan, Canada, France have expressed a strong interest in his invention for the regeneration of sulfuric acid catalysts, which have found applications in the production of high quality alkylate gasoline. Prof. Chou’s specific research interests include the high-energy-efficiency paired electro-synthesis of propylene oxide from propylene, a heterogenized homogeneous catalyst for a cleaner chemical process, new catalysts for utilizing solar energy, and a fluidized bed gasifier in the presence of pilot flame for recovering energy from waste solid material, etc. These technologies have found applications in many industries.

His other research interests include organic electrochemistry, photo-electrochemistry, catalyst and reaction engineering, specialty chemicals, pollution prevention, sensors, integrated bio-sensing chips and micro-sensing devices.



Scheme of Molecular Imprinting Micro-Sensing Chip

Major Honors, Awards & Professional Activities

1. Ministry of Education "Academic Award", 2004.
2. Teco Technology Foundation 'The Teco Technology Award", 2003.
3. Dr. K. T. Lee Forum's "Honorary Scholar" for the academic year 2003.
4. National Cheng Kung University "University Chair Professor", 2001.
5. Foundation for the Advancement of Outstanding Scholarship, 1996-2001.
6. Outstanding Research Award, National Science Council, 1988-1995.
7. Chairman, The First International Meeting on Microsensors and Microsystems, Tainan, 2003.
8. Guest Editor, Special Issue on Microsensors and Microsystems in Biosensors and Bioelectronics (in England), 2004.

Selected Publications

1. Lin, T. Y., Hu, C. H., and Chou, T. C., "Determination of Albumin Concentration by MIP-QCM Sensor", *Biosensors and Bioelectronics*, Vol. 20(1), pp75-81, 2004
2. Liao, W. Y., Lee, Y. G., Huang, C. Y., Weng, Y. C., Lin, H. Y. and Chou, T. C., "Telemetric Electrochemical Sensors", *Biosensors and Bioelectronics*. Vol.20 (3), pp.482-490, 2004.
3. Su, Y. F. and Chou, T. C., "Photocurrent Performance and Nanostructure Analysis of TiO_2/ITO Electrode Prepared Using Reactive Sputtering" *J. Electrochem. Soc.* 151(9), pp.A1375-1382, 2004.
4. Lin, S., Liu, C. C. and Chou, T. C., "Amperometric Acetylcholine Micro-Sensor Catalyzed by Nickel Anode Electrode", *Biosensors and Bioelectronics*, vol.20 (1), pp 9-14, 2004.
5. Uang, Y. M., and Chou, T. C., "Fabrication of Glucose Oxidase/Polypyrrole Biosensor by Galvanostatic Method in Various pH Aqueous Solutions" *Biosensor & Bioelectronics*, 19(3), P141-147, 2003.
6. Chen, M. H. and Chou, T. C., "Electrochemical Detection of Trichloroethylene with an Electrodeposited Pb modified Electrode" *J. Electrochem. Soc.*, 150 (9) H214-H219, 2003.

There are 12 patents in R.O.C., 6 international patents (include U.S.A., Canada, France and Mainland China) and over 180 journal papers published during1970~2004.