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Experience

Academic member, Department of Energy and Refrigeration-Air-Conditioning Engineering. National Taipei University of Technology.

2005~ present Professor. 2014~ present Distinguished Professor.

1998~2002 Assistant Professor, 2002~2005 Associate Professor

1996~1998 PhD. Research Assistant, The University of Liverpool, England

1990~1996 Staff Researcher, Energy and Resource Labs

1988~1990 MS. Research Assistant, Auburn University. Alabama US.

Education

Ph.D., Architecture and Building Engineering,

The University of Liverpool, Liverpool England, **UK (1998)**

MS, Mechanical Engineering, Auburn University, Auburn Alabama, **USA (1990)**

Diploma, Mechanical Engineering, Five Years Program.

National Taipei Institute of Taipei. (**1984**)

Awards and Distinctions

- Outstanding reviewer of the year 2009 for Building and Environment Journal (an SCI indexed journal ranked top 10% in Construction and Building Technology areas (Elsevier Publishing Co.)) (2009)
- Best Technical Paper Award, the 2004 Conference on Aerosol Science and Technology, , Taichung Taiwan, Chinese Association for Aerosol Research in Taiwan (CARRT).(2004)
- Dr. Huang Hui's Technical Paper Award, 2004, The PECL Co. USA.
- Best Research Award, College of Eletro-Mechanicl Engineering. National Taipei University of Technology (2011)
- Distinguished Professor Award, National Taipei University of Technology (2010,2012, 2015)
- Best Technical Paper Award, Taiwan Society of Heating, Refrigerating and

Air-Conditioning Engineers (TSHRAE) (2010)

Institutional and Professional Services

- **2004 – 2011:** Editor in Chief, Journal of Cleaning Technology – The official Journal of Taiwan Cleaning Technology Association. **(in Chinese)**
- **2010~ Present:** Member of the Editorial Board. The Sustainable Cities and Society Journal (Elsevier Co)
- **2008~ Present:** Co-author, ASHRAE Cleanroom Design Guide (responsible for Chapters 1~6 with David Pui, Tom Kuehn and R. Vijayakumar)
- **Peer Reviewer:**
 - Energy- the International Journal
 - Energy and Building Journal
 - International Journal of Refrigeration
 - Apply Thermal Engineering Journal
 - Journal of Environmental Engineering –ASCE
 - Environment Science and Technology Journal
 - ASHRAE Transaction
 - International Journal of Food Engineering
 - Applied Physics Letters
 - Building and Environment Journal

Principal Fields of Research Interests:

Indoor air quality, Cleanroom design, Mirco-Contamination control. Energy-efficient, Healthy, and sustainable building design.

Referred and Per-reviewed Journal Paper

More than 100 publications in total.

Selected journal papers in the last 10 years (* indicates corresponding author)

B Chiu*, S-C Hu*, A. Shiue**, J-Y Huang, “Reduction of moisture and airborne molecular contamination on the purge system of 450 mm Front Opening Unified Pod” Microelectronic Engineering, 150(1) 1-6 (2016). (SCI, IF=1.295, N/M=129/249 (Category: Engineering, Electrical & Electronic)

S-C Hu, A. Shiue*, Y-C Chih, “Monitoring and Analyzing Volatile Organic Compounds in Fabs by Gas Chromatograph /Surface Acoustic Wave” Microchemical Journal (SCI, IF=3.051, N/M=20/74 (Chemistry, Analytical)) In press.

S-C Hu, A. Shiue*, “Validation and Application of the Personnel Factor for the garment used in Cleanrooms”, Building and Environment (SCI,IF=3.598, N/M=3/125 (Engineering, Civil)) In press.

S-C Hu, A, Shiue*, J-X Tu, H-Y Liu, R-B Chiu. “Validation of Cross-contamination Control in Biological Safety Cabinet for Biotech-Pharmaceutical Manufacturing Process”, Environmental Science and Pollution Research, August 11 (2015). (SCI,

IF=2.920, N/M=54/223 (Environment Sciences))

- T. Lin, S-C Hu*, T. Xu. “Developing an innovative fan dry coil unit (FDCU) return system to improve energy efficiency of environmental control for mission critical cleanrooms. *Energy and Buildings*, 90(1) March 2015, pp. 94–105, (2015). (SCI, IF=3.617, N/M=5/59 (Construction & Building Technology)).
- A. Shiue, **S-C Hu***, M-H Chai, “Removal characteristic of PM_{5.0} airborne pollutant with different return air system designs in a non-unidirectional cleanroom for IC manufacturing processes”, *HVAC R & Research*, In Press. 2013.
- S-C Hu**, A. Shiue*, T. Chuang and T. Xu. (2013) “Life Cycle Assessment of High-Technology Buildings: Energy Consumption and Associated Environmental Impacts of Wafer Fabrication Plants. *Energy and Buildings*. 56(1)126-133, January 2013. [SCI. Impact Factor 2.046, Construction and Building Technology: Ranking 4/53 (7.5%)]
- A. Shiue, S-C Hu*, S-Mn Chao. Removal of Inorganic Gas Contaminants via the Air Washer of a Make-up Air Unit in Cleanrooms. *Advanced Science Letters*.
- S-K Yoo, A. Shiue, S-C Hu*, E. Lee, Y. Ju. Monitoring and Purge Parameters of Ammonia for the Front Opening Unified Pod (FOUP). *Advanced Science Letters*. Accepted and In Press. [SCI Impact Factor: 1.253]
- S-C Hu**, A. Shiue*, T. Chuang. “Global warming caused by energy consumption of Dynamic Random Access Memory (DRAM) wafer fabrication plants in Taiwan. *Energy and Buildings*. Submitted. [SCI. Impact Factor 2.046, Construction and Building Technology: Ranking 4/53 (7.5%)]
- A. Shiue, **S-C Hu***. Adsorption Kinetics for the Chemical Filters Used in the make-up air unit (MAU) of a cleanroom. *Separation Science and Technology*. **Accepted and In Press**. [SCI]
- C-K Chang, **S-C Hu***, and V. Liu. (2012) Specific energy consumption (SEC) of Dynamic Random Access Memory (DRAM) module supply chain in Taiwan. **Energy**. **Accepted**. [SCI. Impact Factor: 3.592, Thermodynamics: Ranking: 2/51 (3.9%)]
- T. Lin, **S-C Hu***, T. Xu. Developing an innovative Fan Dry Coil Unit (FDCU) return system for industrial cleanrooms to improve energy efficiency. **Energy and Buildings** . **Submitted**. [SCI. Impact Factor 1.593, Construction and Building Technology: Ranking 5/53 (7.5%)]
- C. Y. Khoo, C-C Lee, **S-C Hu***. An Experimental Study on the Influences of Air Change Rate and Free Area Ratio of Raised-Floor on Cleanroom Particle Concentrations. **Building and Environment**. 48 (2011) 84 – 88.[SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- A. Shiue, **S-C Hu***, C-H Lin, S-I Lin. Quantitative techniques for measuring cleanroom wipers with respect to airborne molecular contamination. **Aerosol and Air Quality Research**, 11: 460–465, 2011. [SCI. Impact Factor 1.792, Environmental Science: Ranking: 81/192 (42.1%)]
- A. Shiue, **S-C Hu***, M-L Tu. (2011) Particles Removal by Negative ionic Air Purifier in Cleanroom. **Aerosol and Air Quality Research**, 11:179–186, 2011. [SCI. Impact Factor 1.792, Environmental Science: Ranking: 81/192 (42.1%)]
- A. Shiue and **S-C Hu***. Contaminant particles removal by negative air ionic cleaner in industrial minienvironment for IC manufacturing processes. **Building and**

Environment. Accepted and In Press [SCI. Impact Factor 1.797, Construction and Building Technology: Ranking 3/53 (5.6%)]

- A. Shiue, W. Den, **S-C Hu***, C.H Lin, V. Hu and S.I.Lin. (2011). Validation and Application of Adsorption Breakthrough Models for the Chemical Filters Used in the make-up air unit (MAU) of a cleanroom. **Building and Environment**. 46(2)468-477. [SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- T. Lin, Y-C Tung, **S-C Hu***, Y-J Chen. (2011) Experimental study on airflow characteristics and temperature distribution in non-unidirectional cleanrooms for electronic industry. **Building and Environment**. 46(2011)1235-1242. [SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- Y-C Shih, **S-C Hu***, C-W Ku, R Chein. (2010) Particle deposition on a 300 mm wafer moving in the opposite direction of the airflow in an uni-directional cleanroom. **Aerosol and Air Quality Research**. 10: 316–322, 2010. [SCI. Impact Factor 1.792, Environmental Science: Ranking: 81/192 (42.1%)]
- S. C. Hu***, T. Xu, T. Chuang, Y-L Chan. (2010) Characterization of Energy Use in Typical 300 mm Dynamic Random Access Memory Wafer Fabrication Plants in Taiwan. **Energy**. 35(2)3788-3792. [SCI. Impact Factor 3.592, Thermodynamics: Ranking: 2/51 (3.9%)]
- Y-C Tung, **S.C Hu***, Y. L. Chang. (2010) Experimental performance investigation of ventilation schemes in a private bathroom. **Building and Environment**. 2010. 45(1), 243:251. [SCI. Impact Factor 1.797, Construction and Building Technology: Ranking 5/49 (10.2%)]
- A Shiue, Y-H Kang, **S-C Hu***, G-T Jou, C-H Lin, M-C Hu and S-I Lin. (2010) Vapor adsorption characteristics of toluene in an activated carbon adsorbent-loaded nonwoven fabric media for chemical filters applied to cleanrooms. **Building and Environment**. 45:2123-2131. [SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- T. Lin, Y-C Tung, **S. C. Hu***, C-Y Lin. (2010) Effects of the Removal of 0.1 μm Particles in Industrial Cleanrooms with Fan Dry Coil Unit (FDCU) Return Systems **Aerosol and Air Quality Research**. 10:571-580. [SCI. Impact Factor 1.792, Environmental Science: Ranking: 81/192 (42.1%)]
- Jhy-Ming Tsao, Shih-Cheng Hua,*, Tengfang Xu, David Y.L. Chan. (2010) Capturing energy-saving opportunities in make-up air systems for cleanrooms of high-technology fabrication plant in subtropical climate. **Energy and Buildings** 42 (2010) 2005–2013. [SCI. Impact Factor 2.046, Construction and Building Technology: Ranking 4/53 (7.5%)]
- A. Shiue, Y-H Kang, **S-C Hu***. Vapor adsorption characteristics of toluene in an activated carbon media-based bed cleaning device for cleanrooms. **Building and Environment. In press**. [SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- J-M Tsao, R Chien, **S-C Hu***, J. W. Wu. (2010) Experimental Study on the Flow and Particle Transport Induced by the Interaction Between Downwash Airflow and a Moving Object in cleanrooms. **ASHRAE Transactions. AB-10-C035 (EI)**.
- Y-C Tung, **S-C Hu***, T. Xu, R-H Wang. (2010) Influence of Ventilation Arrangements on

Particle Removal in Industrial Cleanrooms with Various Tool Coverage. **Building Simulation Journal**. 3(1) 2010, 3-13. [SCI. Impact Factor will be available June 2011]

- A. Shiue, D-C Tien, W. Den, **S-C Hu*** and C-S Hsu. (2010) Deposition and electrostatic removal of gaseous organic contaminants on different substrate surfaces. **Applied Surface Science**. 256(2010)6113-6116. [SCI. Impact Factor 1.616, Material Science, Coatings and Films: Ranking 6/17 (35%)]
- T. Lin, **S. C. Hu***, C. Y. Lin, A. Chang, J. Hwang (2010). An innovative ventilation system for cleanrooms with high cooling loads. **ASHRAE Transaction. RO-10-31 (EI)**.
- J. Tsao, **S. C. Hu***, L-H Chien, W. C. Kao (2010). Cleanroom exhaust energy recovery optimization design. **ASHRAE Transaction. OR-10-010(EI)**.
- Y-H. Kang, A. Shiue, **S-C Hu***, C-Y. Huang, H-T Chen (2010) Using phosphoric acid-impregnated activated carbon to improve the efficiency of chemical filters for the removal of airborne molecular contaminants (AMCs) in the make-up air unit (MAU) of a cleanroom. **Building and Environment**. 2010, 45 (4) 929-935. [SCI. Impact Factor 2.131, Construction and Building Technology: Ranking 3/53 (5.6%)]
- L-M Lo*, **S. C. Hu**, D-R Chen, D. Y. H. Pui. (2010) Numerical Study of Pleated Fabric Cartridges during Pulse-Jet Cleaning. **Powder Technology**. 198(1)75-81. [SCI. Impact Factor 1.745, Chemical Engineering: Ranking 38/128 (19.6%)]
- W. Sun, J. Mitchell, K. Flyzik, S-C Hu, J. Liu, R. Vijayakumar, H. Fukuda. (2010) Development of cleanroom required airflow rate model based on establishment of theoretical basis and lab validation. **ASHRAE Transaction. (OR-10-011) (EI)**.
- C. W. Ku, **S. C. Hu***, W-J Tseng, S-H Chiou, P-S Lee (2010). Reticle Purging Approaches by nitrogen/Compressed Dry air with Enhanced Efficiency. **Aerosol and Air Quality Research**. 10(1). [SCI. Impact Factor 1.792, Environmental Science: Ranking: 81/192 (42.1%)]

Supervisees:

Summary	Total	Completed	In Progress
Post-Doctoral Associate	5	3	2
Ph.D. Students	10	6	4
M.Sc. Students	92	80	12

Major Subjects Taught:

Indoor Air Quality
 Cleanroom Design
 Fluid Mechanics
 Heat Transfer
 HVAC Design
 Environment Engineering