Resume

Shiow-Fon Tsay, Ph.D.

Research Specialties:

- Condensed Matter Physics
- Nanostructure Physics

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Degree

Ph.D. in Physics, National Tsing Hua University (1988/9-1991/2)

Current Positions

- Professor, Department of Physics, National Sun Yat-sen University (1995/2-)
- Distinguished Professor, National Sun Yat-sen University (2019/2-)
- Senior Vice President, National Sun Yat-sen University (2017/2-)
- Supervisor, Physical Society of Taiwan (TPS) (2016-2022/2)
- Executive Director, College Entrance Examination Center (CEEC) (2019/2-2021/2)
- Director, China Steel Corporation Group Education Foundation (2017/4-2022/11)
- Director, Siwan Angels Investment Company (2016/12-)
- Director, Yat-sen Xin Chuang Co. Ltd., (2017/12-)

Honors and Awards

- Honorary Member, *Phi Tau Phi* Scholastic Honor Society of the Republic of China (1980)
- Project for Junior Researcher, National Science Council (NSC) (1991)
- Class A Research Awards, National Science Council (NSC) (1991-1996, 1997-2001)
- College of Science First New Faculty Award, National Sun Yat-sen University (NSYSU) (1992)
- College of Science Distinguished Mentor Award, NSYSU (1991, 1993, 1995, 1997)
- Distinguished Mentor Award, NSYSU (1995, 1997)
- College of Science Outstanding Teaching Award, NSYSU (1991, 1992, 1997)
- Outstanding Contribution Award on Student Affair and Counseling, Ministry of Education (MOE), Taiwan (2006)
- Distinguished Educator Award, MOE, (2012)
- Excellent Teacher Award, MOE (2017)
- College of Science Outstanding Alumni Award, National Tsing Hua University (2018)
- Who's Who in the World (1997-)
- Who's Who Medal: The Leaders for the New Century (2000)
- Who's Who in Science and Engineering (7th Edition, 2003-)
- Who's Who in Asia (1st ed., 2007)

- Albert Nelson Marquis Lifetime Achievement Award (2017-)

Experiences:

- Chairman, Department of Physics, NSYSU (1998/8-2000/7，2008/8-2008/11)
- Vice President, Office of Student Affairs, NSYSU (2000/8-2002/10)
- Vice President, Office of Academic Affairs, NSYSU (2008/10-2012/08)
- Chief Secretary, Office of Secretariat, NSYSU (2014/8-2018/7)
- Director, Alumni Service Center, NSYSU (2016/2-2017/7，2018/8-2019/2)
- Member, 3rd Session of Consultation Committee of Education Reform, MOE
- Councilor (2000-2005), Standing Councilor (2002-2003), Supervisor (2016-2022), Physical Society of Taiwan (TPS)
- Member (2004-2006), Convener (2005-2006), Committee on Women in Physics of TPS
- Member, Project Evaluation Committee, Department of Natural Sciences and Sustainable Development, MoST
- Member, Evaluation Committee, Physics Research Promotion Center (PRPC), MoST (1999-2002, 2006-2010)
- Member, Executive Committee, National Center for Theoretical Sciences (NCTS) (2009-2010)
- Member, Executive Committee, "Computational Materials Physics" Thematic Research Project, NCTS (2003-2010, 2013-2014)
- Director, 1st Session, Taiwan Open Course Ware Consortium (2009-2010), Supervisor, 2nd Session (2011-2012)
- Researcher, "College Recruitment and Entrance Examination Adjustment Program" Information Platform Sub-Program, CEEC (2013-2014)
- Associate Host, CEEC-AST on the Subject of Physics Scoring Method (2009-2017), Convener (2018-2019)
- Member, Review Committee, MOE "Review Committee for Private Universities and Colleges Overall Development Subsidy Funds" (2005-2011, 2014-2015)
- Member, Assessment Committee, MOE "Review Committee for Private Universities and Colleges Overall Development Subsidy Funds" (2006-2011)
- Member, Review Committee, MOE "Subsidy Reward for Private University Departments' Institutional Developments in Mathematics, Researches and Overall Funding Expenditure Proposal" (2008-2011)
- Member, Evaluation Committee, "Planning and Implementation of University Evaluation" (2005)
- Member, Evaluation Committee, MOE "University Institutional Evaluation of the Second Cycle", (Organized by the Higher Education Evaluation & Accreditation Council of Taiwan", (2017-2018)
- Member, Planning Committee, MOE "Evaluation of University Departments – Physics and Astrology Discipline" (Organized by the Higher Education Evaluation & Accreditation Council of Taiwan" (2007-2008, 2011)

- Member, Evaluation Committee, MOE “Professional Evaluation of University Departments” (2008, 2010)
- Member, Evaluation Committee, MOE “Evaluation, Follow-Up Evaluation and Re-Evaluation of University Departments” (2010)
- Member, Evaluation Committee, MOE General Education of University Departments and Departmental (Institute) Evaluation of the Second Cycle (Organized by the Higher Education Evaluation & Accreditation Council of Taiwan” (2011-2013, 2016)
- Member, Evaluation Committee, Institutional Evaluation for University of Science and Technology Project, MOE (2005-2020) (Organized by the Taiwan Assessment and Evaluation Association)
- Member and Convener, MOE “Evaluation of Technical Colleges”, (2002-2005); Member, Evaluation Committee, (2002-2005，2007-2011) and Evaluation of Technical Colleges and Junior Colleges” (2012-2018)
- Planning Committee Member and Assessment Committee Member, MOE “Measures to Promote Implementation of the Internal Control System of the Private Schools” (2013-2015) (Organized by the Chinese Management Association)
- Member, Assessment Committee (2015-2018), MOE Integrated Inspection of Universities and Colleges Project, Written Review (2018-2019)
- Member, Committee for Placing Senior High School Principals in Kaohsiung City, (2009)
- Member, Evaluation Committee, 4th Session, MOE Promote Ways to Merge the National University Committee (2019-2020)
- Member, Review Committee, Textbook on Basic Physics for Vocational Schools, National Academy for Educational Research (formerly the National Institution for Compilation and Translation) (2010-2012)
- Member, Advisory Committee, Center for Teaching and Learning Development, National Taiwan University (2012-2014)
- Member, Assessment Committee, Second Northern Taiwan Teaching Resource Center, Thematic Project (National Taiwan University) (2011-2014)
- Member, Advisory Committee, MOE “Objectives and Vision Planning for Student Affairs Task Force”
- Member, Evaluation Committee, MOE “Expenditure Subsidy to Private University Departments for Student Affairs and Student Counseling (Guidance)” and “Performance Outcome of the Expenditure Subsidy to Private University Departments for Student Affairs and Student Counseling (Guidance)” (2004-2019)
- Member, Assessment Committee, MOE “Expenditure Subsidy to Private University Departments for Student Affairs and Student Counseling (Guidance) and Funding Allocation Performance Assessment Project” (2003-2014)
- Member, Performance Evaluation Committee, MOE Expenditure Subsidy to Private University Departments for Student Affairs and Student Counseling (Guidance) and Funding Allocation – Featured Thematic Project” (2003-2017)
- Member, Assessment Committee (2015-2018), MOE Integrated Inspection of Universities and Colleges Project; Written Review (2018-2019)

- Member, Evaluation Committee, MOE “Subsidy for the Self-Evaluation and Featured Thematic Demonstration Project of Public University Departments Undertaking Student Affairs and Student Counseling” (2004-2009, 2017)

Publications:

- ***Shiow-Fon Tsay*** and Shou-Yih Wang, 1987, "Calculation of Intersubband Resonance in an Inversion Layer on P-type Si (100) Induced by a Grating Coupler", ***Physica* 145B**, 29-38.
- ***Shiow-Fon Tsay***, Shou-Yih Wang, Lance Horng and T. J. Watson Yang, 1989, "Correlations among c/b, T_c, and Madelung potentials in the system of $RBa_2Cu_3O_7$ Superconductors", ***Physical Review B-Rapid Communications* 40**, 9408.
- T. J. Watson Yang, ***Shiow-Fon Tsay*** and Shou-Yih Wang, 1990, "On the role of Cu-O chains in $RBa_2Cu_3O_7$ system from the Plasmon-Mediated Mechanism ", ***Physica B* 165&166**, 1049.
- ***Shiow-Fon Tsay,*** Shou-Yih Wang and T. J. Watson Yang, 1990, "The Mechanism of Chains in Producing Acoustic Plasmons in Systems Composed of Cu-O_2 layer and Cu-O chains", ***Physics Letters A* 151**, 436.
- ***Shiow-Fon Tsay,*** Shou-Yih Wang and T. J. Watson Yang, 1991, "Plasmon modes in a system composed of Cu-O layers and chains", ***Phys. Rev. B* 43**, 13080.
- T. J. Watson Yang, ***Shiow-Fon Tsay*** and Shou-Yih Wang, 1991, "The Coupling Nature of Plasmon Modes Among Different Layers in a System Composed of CuO_2 Layers and CuO Chains", ***Physica C* 185**, 1561.
- ***Shiow-Fon Tsay,*** Shou-Yih Wang and T. J. Watson Yang, 1992, "The dispersion relations of plasmons in a simplified system of Cu-O layers and chains with the long range effect of all-neighbors Coulombic interactions taken into consideration", ***Z. Phys. B-Condensed Matter* 88**, 255. (*Times Cited:* 1)
- ***Shiow-Fon Tsay,*** 1993, "Structure of rapidly quenched Ga metal", ***Phys. Rev. B* 48**, 5945.
- ***Shiow-Fon Tsay,*** Shou-Yih Wang and T. J. Watson Yang, 1994, "Density of States of Plasmons and Some Discussion of T_c for a simplified system Composed of Cu-O Layers and Chains", ***Prec. Natl. Sci. Counc. ROC(A)* 18**, 2, 186.
- ***Shiow-Fon Tsay,*** 1994, "Plasmon Densities of States in a $YBa_2Cu_3O_y$ System”, ***Solid State Communications* 90**, 379.
- ***Shiow-Fon Tsay***, 1994, "Relation between the β and rapidly-quenched liquid phases of gallium", Phys. Rev. B 50, 103.
- ***Shiow-Fon Tsay*** and S. Wang, 1994, "Anomalies in the liquid structure of Ga metal", Phys. Rev. B 50, 108.
- ***Shiow-Fon Tsay*** and C. F. Liu, 1994, "System-size effects in the molecular-dynamics simulation of metallic crystallization”, Physics Letters A 192, 374.
- ***Shiow-Fon Tsay***, C. F. Liu and S. Wang, 1995, "Molecular-dynamics simulations on supercooled metallic liquids II: System size and pressure effects" **Chinese Journal of Physics 33**, 75.
- H. Chou, T. C. Chow, ***S. F. Tsay*** and H. S. Chen, 1995, "Concentration Dependent Diffusivity of Oxygen in Ba_xCu_{1-x} liquid Alloy", ***J. Electrochem. Society* 142**, 1814.

- Ikai Lo, M. J. Kao, W. C. Hsu, K. K. Kuo, Y. C. Chang, H. M. Weng, J. C. Chiang, and ***S. F. Tsay***, 1996, "Photoinduced electron coupling in □-doped GaAs/$In_{0.18}Ga_{0.82}As$ quantum wells", ***Phys. Rev. B* 54**, 4774.
- Jih-Chen Chiang, ***Shiow-Fon Tsay,*** Z. M. Chau, Ikai Lo, 1996, "Conduction-valence Landau level mixing effect", ***Phys. Rev. Lett.* 77**, 2053.
- Ten-Ming Wu, ***Shiow-Fon Tsay***, 1996, "Instantaneous Normal Mode Analysis of Liquid Na", ***J. Chem. Phys.* 105**, 9281.
- Ikai Lo, Jih-Chen Chiang, ***Shiow-Fon Tsay***, W. C. Mitchel, M. Ahoujja, R. Kaspi, S. Elhamri, and R. S. Newrock, 1997, "Effect of well thickness on the two-dimensional electron-hole system in $Al_xGa_{1-x}Sb$/InAs quantum wells", ***Phys. Rev. B* 55**, 13677.
- Ten-Ming Wu and ***Shiow-Fon Tsay***, 1997, "Localized Instantaneous Normal Modes in Liquid Na", ***Progress Theoretical Physics Supplement* 126**, 343.
- ***Shiow-Fon Tsay,*** Jih-Chen Chiang, Z. M. Chau, Ikai Lo, 1997, "**k•p** finite difference method: a study of the band structures and cyclotron resonances of $Al_xGa_{1-x}Sb/InAs$ Quantum Wells", ***Phys. Rev. B* 56** 13242-13251
- Jih-Chen Chiang, ***Shiow-Fon Tsay,*** Z. M. Chau, Ikai Lo, 1998, Comment on "Conduction-valence Landau level mixing effect"- Reply, ***Phys. Rev. Lett* 80**, 2497.
- Wen-Jong Ma and ***Shiow-Fon Tsay,*** 1998, "Short range Ordering in the Supercooled States of a Dimer System", ***Phys. Rev. E* 57** 4165.
- Ten-Ming Wu, Wen-Jong Ma and ***Shiow-Fon Tsay,*** 1998, "Potential Effects on Instantaneous Normal Modes of Liquids", ***Physica A* 253**, 257.
- Ten-Ming Wu, ***Shiow-Fon Tsay***, 1998, "Instantaneous Normal Modes of Na in Supercooled Liquid and Glassy states", **Phys. Rev. B 58,** 27.
- ***Shiow-Fon Tsay***, M.-H. Tsai, M. Y. Lai and Y. L. Wang, 2000, "The structural properties of Ga clusters on Si (111)", ***Phys. Rev. B* 61**, 2699.
- Ten-Ming Wu, ***Shiow-Fon Tsay,*** S. L. Chang and Wen-Jong Ma, 2001, "Instantaneous Resonant Modes in High-Temperature Gallium Liquids", ***Phys. Rev. B* 64,** 064204.
- Ikai Lo, ***Shiow-Fon Tsay***, Jih-Chen Chiang, Y. C. Chang, and Li-Wei Tu, 2001, "Hybridazation of two-dimensional electron-hole system in InAs/GaSb Quantum Wells", ***Chinese Journal of Physics* 39,** L387.
- Ten-Ming Wu, Wen-Jong Ma, S. L. Chang and ***Shiow-Fon Tsay***, 2002, "Local geometric structures of instantaneous resonant modes in Ga Liquids", ***Physica B* 316-317**, 606.
- ***Shiow-Fon Tsay***, 2005, "Atomic and electronic structures of the (4×1)- and (8×2)-In/Si (111) surfaces", ***Phys. Rev. B* 71**, 035207.
- Ikai Lo, W. T. Wang, M. H. Gau, ***S. F. Tsay***, and J. C. Chiang, 2005, "Wurtzite structure Effects on Spin Splitting in GaN/AlN Quantum Wells", ***Phys. Rev. B* 72**, 245329.
- Ikai Lo, W. T. Wang, M. H. Gau, J. K. Tsai, ***S. F. Tsay***, and J. C. Chiang, 2006, "Gate-Controlled Spin Splitting in GaN/AlN Quantum Wells", ***Appl. Phys. Lett. 88,*** 082108. (has been selected for the March 6, 2006 issue of Virtual Journal of Nanoscale Science & Technology.)

- Ten-Ming Wu, S. L. Chang and ***Shiow-Fon Tsay***, K. H. Tsai, 2006, "Simulation for the time evolution of instantaneous resonant modes: Creation, annihilation and mode exchange", ***Journal of Non-crystalline solids*** **352**, 4615-4618
- K. H. Tsai, Ten-Ming Wu, and ***Shiow-Fon Tsay***, T. J. Yang, 2007, "Dynamic structure factor of liquid Ga close to the melting point: Spectral linewidth at high momentum transfers", ***Journal of Physics: condensed Matter***. 19, 205141.
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- Chung-Yuan Ren, ***Shiow-Fon Tsay*** and Feng-Chuan Chuang, 2007, "First-principles study of the atomic and electronic structure of the Si(111)-(5×2)-Au surface reconstruction", ***Phys. Rev. B*** **76**, 075414.
- Wan-Tsang Wang, C. L. Wu, ***S. F. Tsay***, M. H. Gau, Ikai Lo, H. F. Kao, D. J. Jang, and Jih-Chen Chiang, Meng-En Lee, Yia-Chung Chang, Chun-Nan Chen, H. C. Hsueh, 2007, "Dresselhaus effect in bulk wurtzite structures", ***Appl. Phys. Lett.*** **91, 082110.**
- ***Shiow-Fon Tsay,*** J.Y. Chung, M.-F. Hsieh, S.-S. Ferng, C.-T. Lou, D.-S. Lin, 2009, Growth mode and novel structure of ultra-thin KCl layers on the Si(100)-2x1 surface, ***Surface Science*** **603**, 419.
- ***Shiow-Fon Tsay*** *and* D.-S. Lin, 2009, 'Atomic and electronic structures of thin NaCl films grown on a Ge(001) surface", ***Surface Science*** **603**, 2102
- Ming-Feng Hsieh, Deng-Sung Lin and ***Shiow-Fon Tsay***, 2009, **"**Possibility of direct exchange diffusion of hydrogen on the Cl/Si(100)-2×1 surface", *Phys. Rev. B* **80**, 045304.
- K. H. Tsai, Ten-Ming Wu, and ***Shiow-Fon Tsay***, 2010, "Revisiting anomalous structures in liquid Ga", ***Journal Chem. Phys.*** **132**, 034502.
- Chieh-Lung Wu, ***Shiow-Fon Tsay***, Wan-Tsang Wang, Ming-Hong Gau, Jih-Chen Chiang, Ikai Lo, Hsiu-Fen Kao, Yu-Chi Hsu, Der-Jun Jang, Meng-En Lee, and Chun-Nan Chen, 2010, "Crystal-field and Strain Effects on Minimum-spin-splitting Surfaces in Bulk Wurtzite Materials", ***Journal of the Physical Society of Japan***, **79**, 093705.
- ***Shiow-Fon Tsay,*** **2012, "**Pt-chain induced formation of Ge nanowires on the Ge(001) surface", ***Surface Science*** **606**, 1405.
- Chan-Yuen Chang, Hong-Dao Li, ***Shiow-Fon Tsay***, Shih-Hsin Chang, and Deng-Sung Lin, 2012, "Atomic and Electronic Processes During the Formation of an Ionic NaCl Monolayer on a Covalent Si(100) Surface", ***The Journal of Physical Chemistry C*** **116**, 11526-11538.
- ***Shiow-Fon Tsay,*** **2016,** "Au-induced Deep Groove Nanowire Structure on the Ge(001) Surface: DFT Calculations"**,** ***Surface Science*** **651,** 164.
- ***Shiow-Fon Tsay,*** **2016,** "Gold deposited on a Ge(001) Surface: DFT Calculations", ***Journal of Physics*****: Condensed matter 28,** 435001.