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苏州大学功能纳米与软物质研究院 (FUNSOM)
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RESEARCH INTERESTS:

- 1) Novel organic electronic devices and materials
(including light-emitting devices, solar cells, photodetectors, and thin-film transistors)
- 2) Physics of organic semiconductor devices
- 3) Surface and interface studies on thin films, and
- 4) Energy efficiency and solar energy utilization

EDUCATION AND TRAINING:

03/1996-11/1997 **Fudan University, Shanghai, China**

Postdoctoral Fellow, Condensed Matter Physics

Research: 1) Light emission from porous Si and from ion implanted SiO₂, SiN_xO_y films grown on Si

2) Failure analysis and fabrication of organic light-emitting devices

Advisor: Prof. Xun Wang (Academician, Chinese Academy of Sciences)

09/1993-01/1996 **Nanjing University, Nanjing, China**

Ph.D., Condensed Matter Physics

Dissertation: Microstructures and luminescence characteristic of Si-based blue-light emitting materials: nanocrystalline beta-SiC porous films and Si⁺-implanted thermal SiO₂ films

Advisors: Prof. Nai-Ben Min (Academician, Chinese Academy of Sciences) and Prof. Xi-Mao Bao

- 09/1985-07/1988 **Nanjing University, Nanjing, China**
M.Sc., Physics of Semiconductors & Semiconductor Devices
Thesis: Sensing characteristics and mechanism of rare-earth doped SnO₂ semiconductor gas sensors
Advisors: Prof. Xi-Mao Bao (Nanjing University, Nanjing, China)
Prof. Shi-Ke Zhong (Jiangxi University, Nanchang, China)
- 03/1978-01/1982 **Jiangxi University, Nanchang, China**
B.S., Semiconductor Physics
Thesis: Research progress in SnO₂ based semiconductor gas sensors
Advisors: Prof. Shi-Ke Zhong

EMPLOYMENT HISTORY:

- 03/2009-Present **Soochow University, Suzhou, China**
Professor, Deputy Director (2009-2016)
Institute of Functional Nano & Soft Materials (FUNSOM)
- 12/2000-03/2009 **Eastman Kodak Company, Rochester, NY 14650, U.S.A.**
Senior Research Scientist, Research Laboratories, R&D
- 12/1997-12/2000 **Fudan University, Shanghai, China**
Associate Professor, Surf. Phys. Lab, and Dept. of Phys.
- (12/1998-06/2000) **City University of Hong Kong, Hong Kong, SAR, China**
Research Fellow, Center Of Supper-Diamond and Advanced Films (COSDAF) &
Dept. of Phys. & Mater. Sci. (On leave from Fudan University)
- 07/1988-09/1993 **Nanchang University (AKA: Jiangxi Univ.), Nanchang, China**
Lecturer (07/1988-06/1993), Associate Professor (06/1993-), Dept. of Phys.
- 01/1982-09/1985 **Jiangxi University, Nanchang, China**
Teaching Assistant, Dept. of Phys.

TEACHING EXPERIENCES:

- 03/2009-Present **FUNSOM, Soochow University, China**
Advisor of M.Sc. and Ph. D. Dissertations on Organic Optoelectronics
Taught graduate course: "Organic Light-Emitting Materials and Devices"
Taught undergraduate courses "Surfaces and Interfaces", "Electrical Engineering and Electronics"
- 02/1998-12/1998 **Dept. of Phys., Fudan University, China**
Advisor of M.Sc. Dissertations on Organic Semiconductors, and
B.Sc. Physics Final Year Dissertations
- 01/1982-09/1993 **Dept. of Phys., Jiangxi University, Nanchang, China**
Advisor of B.Sc. Applied Physics Final Year Dissertations
Taught undergraduate courses: "Electronic Instrumentation", "Digital Circuits", "Semiconductor Physics", and "Semiconductor Specialty Experiments"

RESEARCH EXPERIENCES:

03/2009-Present **FUNSOM, Soochow University, China**

Research on organic light-emitting diodes (OLEDs) and materials, organic light-emitting displays, organic solar cells, organic photodetectors, and organic micro/nano crystal materials and optics

Principal Investigator of:

- 11) "Bis-tridentate Ir(III) phosphors for high-efficiency and long-lifetime organic light-emitting diodes", Natural Science Foundation of China (NSFC), No. 61961160731, (01/2020-12/2023), RMB 1.00M
- 10) "Studies of key scientific issues on highly stable and printable perovskite solar cells", NSFC, No. 91733301, (01/2018-12/2020), RMB 1.20M (PI of one of the 4 sub projects)
- 9) "High-efficiency NIR materials and devices with thermally activated delayed fluorescence mechanism", NSFC, No. 51773141, (01/2018-12/2021), RMB 0.63M
- 8) "The key technology and manufacturing demonstration of high-efficiency and large area OLED lighting sources", The National Key R&D Program of China, No. 2016YFB0400700, (07/2016-12/2020), RMB 30.00M
- 7) "Tandem OLEDs with both visible and NIR emissions", NSFC, No. 61575136, (01/2016-12/2019), RMB 0.74M
- 6) "Organic solid-state sources for 3D displays", NSFC, No. 61177016, (01/2012-12/2015), RMB 0.73M
- 5) "Surface plasmon polariton enhancement at the interface of metal/organic in light-emitting devices", Key project of NSFC, No. 61036009, (01/2011-12/2014), RMB 2.50M
- 4) "Studies on low-k materials for high speed integrated circuits", a sub project of "02 Project", by National Science and Technology Major Project (02 Project), No. 2011ZX02703-05, (01/2011-12/2014), RMB 3.76M
- 3) "Studies on high-efficiency tandem OLEDs and their interfaces" a Taiwan-strait collaboration funded by NSFC, No. 21161160446, (2012-2014), RMB 1.80M
- 2) "Development of large area, high efficiency, and long lifetime white OLEDs and the solid-state lighting luminaires", the National High Technology Research and Development Program ("863" Program) of China, No. 2011AA03A110, (01/2011-12/2013), RMB 27.67M
- 1) "Novel OLED structures for display and solid-state applications", Natural Science Foundation of Jiangsu Province, No. BK2010003, (07/2010-06/2013), RMB 1.0M

12/2000-03/2009 **Eastman Kodak Company, Rochester, NY 14650-2110, U.S.A.**

Research on organic light-emitting devices (OLEDs), organic light-emitting displays, organic solar cells, organic photodetectors, and organic thin-film transistors (TFTs)

Principal Investigator of:

- 4) "New OLED architecture for solid-state general lighting applications", (2006-2008)
- 3) "Organic back-lighting", (2005-2006)
- 2) "Tandem OLEDs", (2002-2005)
- 1) "Improvement of carrier injection properties at electrode interfaces in OLEDs", (2001-2002)

(12/1998-06/2000) City University of Hong Kong, China

Associate Investigator of Project “Electrode modification and interface characterization of polymer light-emitting diodes”, (C.S. Lee, L.S. Hung, S.T. Lee, and L.S. Liao)
Research Grant Council of Hong Kong. No. 102800, (06/2000-12/2000)

12/1997-12/2000 Dept. of Phys., Fudan University, China

4) Associate Investigator of Project “Fabrication of organic light-emitting diodes and studies of organic laser diodes” Shanghai Research Center in Applied Physics, China. (03/1999-12/2001)
3) **Principal Investigator** of Project “Molecular beam epitaxial growth and interfacial studies of electroluminescent organic films”, NSFC, No. 69776034, (01/1998-12/2000)
2) Associate Investigator of Project “MBE growth and characterization of GaN thin films”, Shanghai Research Center of Applied Physics, China. (07/1997-06/2000)
1) **Principal Investigator** of Project “Si-based light-emitting SiO₂ films modified by C⁺-implantation”, Postdoctoral Science Foundation of China. (07/1996-12/1997)

09/1993-01/1996 Nanjing University, Nanjing, China

4) Associate Investigator of Project “Luminescent porous silicon – the microstructures, the luminescence mechanism and the modification by beams”, key project of NSFC, (01/1995-12/1997)
3) Associate Investigator of Project “Photoluminescence studies on the PECVD grown amorphous Si films containing nanocrystalline silicon”, NSFC, (01/1995-12/1997)
2) **Principal Investigator** of Project “Blue emitting materials of C⁺-implanted porous structures”, funded by the Ion Beam Lab., Shanghai Institute of Metallurgy, Chinese Academy of Sciences, China, (01/1995-12/1996)
1) Associate Investigator of Project “Si-based SiO₂ films modified by ion beams”, funded by the National Joint Lab. of Material Modification by Electron-, Ion-, and Photon-Beams, Dalian Polytechnic University, China, (01/1995-12/1996)

01/1982-09/1993 Dept. of Phys., Jiangxi University, Nanchang, China

2) Associate Investigator of Project “Rare-earth doped tin dioxide semiconductor gas sensors”, Natural Science Foundation of Jiangxi Province, China, (01/1987-12/1988)
1) Associate Investigator of Project “Invention of a new device: resistor-oxide-semiconductor field effect transistor (ROSFET)”, Natural Science Foundation of Jiangxi Province, China, (07/1983-06/1985)

ADMINISTRATION EXPERIENCES:

03/2009-07/2016 Deputy Director, FUNSOM, Soochow Univ., China
01/1991-12/1991 Deputy Chair, Dept. of Phys., Jiangxi Univ., China
07/1988-12/1990 Assistant Department Chair, Dept. of Phys., Jiangxi Univ., China

OTHER EXPERIENCES:

06/1989-09/1990 Visiting Scholar, California State University, Northridge, U.S.A.

PROFESSIONAL ROLES:

- 01/2015 – **Associate Editor** of “Applied Physics Letters” (AIPP, U.S.A)
- 11/2013: **Guest Editor** of “Journal of Nanomaterials” for the issue of “Nanomaterials and their applications for organic electronic devices”
- 06/2013: **Guest Editor** of “International Journal of Photoenergy” for the issue of “Materials, designs, fabrications and applications of organic electronic Devices”
- 01/2011–12/2018 **Advisory Board Member** of “Journal of Imaging Science and Photochemistry” (A Chinese Journal)
- 03/2010: External reviewer of research proposals for A*STAR, Singapore
- 10/2007: External reviewer of research proposals for Nanyang Technical University, Singapore
- 12/2006 – External reviewer of research proposals for the Research Grant Council of Hong Kong.
- 05/1998 – Reviewer of research proposals for the National Natural Science Foundation of China
- Being a reviewer of more than 30 scientific journals**, such as, Nature Materials, Nature Photonics, Nature Communications, NPG Asia Materials, Advanced Materials, Advanced Functional Materials, ACS Nano, Journal of the American Chemical Society, IEEE Transactions on Electron Devices, Applied Physics Letters, etc.

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

- Member of the Material Research Society (MRS), U.S.A. (12/2003 –)
- Member of the Society of Information Display (SID), U.S.A. (05/2000 –)
- Member of the Chinese Chemistry Society, China (10/2012 –)

HONORS & AWARDS:

20. “Second Prize of National Teaching Achievement Award in Higher Education”, by the Chinese Government
19. “The Second Prize of Technology Invention Award for Outstanding Achievement in Scientific Research of Higher Education”, by the Ministry of Education of China in 2017
18. “Special Prize of Jiangsu Teaching Achievement Award (Higher Education)”, by Jiangsu Provincial Government in 2017
17. “Model Worker”, conferred by Suzhou City Government in 2015
16. “Outstanding Overseas Award”, by Jiangsu Provincial Administration in January 2013
15. “Outstanding Educator”, awarded by Suzhou City Government in September 2012
14. “Overseas Team Leader Award”, by Suzhou City Government in September 2011
13. “Most Needed Talents in Suzhou City”, awarded by Suzhou City Government in December 2009.
12. Being selected into the Provincial “Innovation and Entrepreneurship Talents Program” of Jiangsu Province, in December 2009
11. Being selected as the National Expert, in September 2009
10. “Distinguished Inventor”, awarded by Eastman Kodak Company in March 2007
9. “First Rate Award in Progress of Science and Technology” awarded by the Provincial Government of Jiangsu, China in 1998

8. “Guanghua First Rate Scholarship”, awarded by Nanjing Univ., China in 1995
7. “Japan-China Scholarship”, awarded by Nanjing Univ., China in 1993 and 1994, respectively
6. “Outstanding Teacher”, conferred by Jiangxi Univ., China in 1991
5. “Outstanding Young Teacher”, conferred by the Provincial Government of Jiangxi, China in 1991
4. “Special Prize”, won in “the 1st Exhibition of Academic Achievements of the Graduate Students in Jiangxi, China in 1988”
3. “Outstanding Graduate Student”, conferred by Jiangxi Univ., China in 1986 and 1987, respectively
2. “Outstanding Teacher”, conferred by Jiangxi Univ., China in 1983
1. “First Rate Scholarship”, awarded by Jiangxi Univ., China in 1982

PUBLICATIONS:**A. JOURNAL PAPERS:**

(PAPERS PUBLISHED IN “SCI” CITED JOURNALS) (* Corresponding Author)

Total citations of the SCI papers: ~12,000 times; h-index = 55

- 345 Y. Hu, Y. J. Yu, Y. Yuan, Z. Q. Jiang*, **L. S. Liao***, “Exciplex-Based Organic Light-Emitting Diodes with Near-Infrared Emission”, *Adv. Optical Mater.* 1901917. doi: 10.1002/adom.201901917 (2020).
- 344 X. Tang, Y. Li, Y. K. Qu, C. C. Peng, A. Khan, Z. Q. Jiang*, **L. S. Liao***, “All-Fluorescence White Organic Light-Emitting Diodes Exceeding 20% EQEs by Rational Manipulation of Singlet and Triplet Excitons”, *Adv. Funct. Mater.* 30, 1910633. doi: 10.1002/adfm.201910633 (2020).
- 343 Q. Wang, F. Lucas, C. Quinton, Y. K. Qu, J. R. Berthelot, O. Jeannin, S. Y. Yang, F. C. Kong, S. Kumar, **L. S. Liao***, C. Poriel and Z. Q. Jiang*, “Evolution of pure hydrocarbon hosts: simpler structure, higher performance and universal application in RGB phosphorescent organic lightemitting diodes”, *Chem. Sci.* 11,4887–4894. doi: 10.1039/d0sc01238f (2020).
- 342 J. J. Wu, H. Gao, R. Lai, M. P. Zhuo, J. Feng, X.-D. Wang*, Y. Wu*, **L. S. Liao***, L. Jiang, “Near-Infrared Organic Single-Crystal Nanolaser Arrays Activated by Excited-State Intramolecular Proton Transfer”, *Matter* 2, 1233-1243. doi: 10.1016/j.matt. 2020.01.023 (2020).
- 341 C. C. Yan, X.-D. Wang*, **L. S. Liao***, “Organic Lasers Harnessing Excited State Intramolecular Proton Transfer Process”, *ACS Photonics.* 7, 1355-1366. doi: 10.1021/acsp Photonics.0c00407 (2020).
- 340 S. Y. Yang, Y. L. Zhang, A. Khan, Y. J. Yu, S. Kumar, Z. Q. Jiang*, **L. S. Liao***, “Nondoped organic light-emitting diodes with low efficiency roll-off: the combination of aggregation-induced emission, hybridized local and charge-transfer state as well as high photoluminescence efficiency”, *J. Mater. Chem. C.* 8, 3079-3087. doi: 10.1039/c9tc06444c (2020).
- 339 Q. Q. Ye, M. Li, X. B. Shi, M. P. Zhuo, K. L. Wang, F. Igbari, Z. K. Wang*, **L. S. Liao***, “UV-Stable and Highly Efficient Perovskite Solar Cells by Employing Wide Band gap NaTaO₃ as an Electron-Transporting Layer”, *ACS Appl. Mater. Interfaces.* 12, 21772–21778. doi: 10.1021/acsam.0c04934 (2020).
- 338 Y. Yu, Y. C. Tao, S. N. Zou, Z. Z. Li, C. C. Yan, M. P. Zhuo, X. D. Wang*, **L. S. Liao***, “Organic heterostructures composed of one- and two-dimensional polymorphs for photonic applications”, *Sci. China Chem.* 63, 1477-1482. doi: 10.1007/s11426-019-9706-x (2020).