

# Chih-Jen Shih

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## ACADEMIC APPOINTMENTS

- 2022 - Associate Professor (tenured), Institute for Chemical and Bioengineering, Department of Chemistry and Applied Biosciences, ETH Zürich, Switzerland
- 2015 - 2021 Assistant Professor (tenure-track)
- 2014 - 2015 Postdoctoral Research Associate, with Prof. Zhenan Bao, Department of Chemical Engineering, Stanford University, USA
- 2010 - 2014 Graduate Research Fellow, with Profs. Daniel Blankschtein and Michael Strano, Department of Chemical Engineering, Massachusetts Institute of Technology (MIT), USA

## EDUCATION

- 2014 Ph.D., Chemical Engineering, MIT, Cambridge, USA
- 2004 M.S., Chemical Engineering, NTU, Taipei, Taiwan
- 2002 B.S., Chemical Engineering, NTU, Taipei, Taiwan

## HONORS

- 2019 ERC Starting Grant, EU.
- 2018 Selected as “Best Paper Award” by International Display Workshops, Society for Information Display, Japan.
- 2017 Ružička Prize, ETH Zürich, Switzerland.
- 2017 Named as “Influential Researcher 2017” by Ind. Eng. Chem. Res., American Chemical Society, USA.
- 2017 Victor K. LaMer Award, Colloid & Surface Chemistry Division, American Chemical Society, USA.
- 2017 Named as “Emerging Investigator 2017” by J. Mater. Chem., Royal Society of Chemistry, UK.
- 2013 Outstanding Graduate Teaching Assistant Award, MIT, USA.
- 2011 Chyn Duog Shiah Memorial Fellowship, MIT, USA.
- 2009 David H. Koch Fellowship, MIT, USA.

## PROFESSIONAL SERVICE

- 2021 - pres. Associate Editor, *Frontiers in Chemical Engineering*, Frontiers Media, Switzerland.
- 2017 - pres. Editorial Board Member, *Scientific Reports*, Nature Publishing Group, UK.
- 2017 - pres. Proposal Reviewer, Swiss National Science Foundation, Switzerland.
- 2017 - pres. Proposal Reviewer, American Chemical Society Petroleum Research Fund (ACSPFR), USA.
- 2017 - pres. Proposal Reviewer, Department of Energy (DOE), USA.
- 2019 Session Chair, Division of NanoDisplays and Nanotechnology Application, IDW '19, Japan.
- 2019 Session Chair, Division of Colloidal and Surface Chemistry (COLL), ACS 257<sup>th</sup> Meeting, USA.
- 2017 Panel Reviewer, MaP Award 2017, ETH Zürich, Switzerland.
- 2017 Proposal Reviewer, American Chemical Society Petroleum Research Fund (ACSPFR), USA.
- 2017 Organizer, Raman Microscopy Workshop, ETH Hönggerberg, Switzerland.
- 2016 Poster Jury, MaP Graduate Symposium 2016, ETH Zürich, Switzerland.
- 2016 Panel Reviewer, The Branco Weiss Fellowship, Society in Science, ETH Zürich, Switzerland.
- 2014 Panel Reviewer, SBIR / STTR Grants, National Science Foundation, USA.
- 2012 - pres. Active reviewer for the following journals: *ACS Appl. Mater. Interface*, *ACS Energy Lett.*, *ACS Nano*, *ACS Photonics*, *Adv. Func. Mater.*, *Adv. Mater.*, *Adv. Opt. Mater.*, *AICHE J.*, *Angew. Chem.*, *Appl. Phys. Lett.*, *Chem. Commun.*, *Chem. Mater.*, *Inorg. Chem.*, *J. Am. Chem. Soc.*, *J. Mater. Chem. A*, *J.*

*Mater. Chem. C, J. Phys. Chem. B, J. Phys. Chem. C, J. Phys. Chem. Lett., Langmuir, Nano Lett., Nature, Nat. Chem., Nat. Commun., Nat. Electron., Nat. Mater., Org. Electron., Sci. Adv., Sci. Robot., Sci. Rep., Small.*

## INSTITUTIONAL RESPONSIBILITY

- 2021 - 2023 Deputy Head, Institute for Chemical and Bioengineering, ETH Zurich.  
 2018 - 2019 Chairman of ICB Seminar Series, Institute for Chemical and Bioengineering, ETH Zurich.

## OUTREACH

- 04 Sep. 2019 *Informationstage für MaturandInnen*. Represented ICB to deliver an introductory presentation to ~100 high school students about chemical engineering curriculum.  
 29 Mar. 2019 *Tag der offenen Laboratorien*. Represented ICB to deliver an introductory presentation to >100 high school students about nanoscience and nanoengineering research in chemical engineering.  
 23 Mar. 2018 *Tag der offenen Laboratorien*. Hosted ~40 high school students from Zürich for a day of exposure to quantum dot chemistry and its light-emitting diode device fabrication.  
 08 Apr. 2016 *Tag der offenen Laboratorien*: Hosted ~40 high school students from Zürich for a day of exposure to quantum dot chemistry and its light-emitting diode device fabrication.

## TEACHING

- 2016 Spring Instructor, *Interface Engineering of Materials (529-0610-00L)*  
 Enrollment: Graduate 18 Teaching Evaluation (Overall Satisfaction): 4.9/5.0  
 2017 Spring Instructor, *Interface Engineering of Materials (529-0610-00L)*  
 Enrollment: Graduate 22 Teaching Evaluation (Overall Satisfaction): 4.1/5.0  
 2018 Spring Instructor, *Interface Engineering of Materials (529-0610-00L)*  
 Enrollment: Graduate 20 Teaching Evaluation (Overall Satisfaction): N/A  
 2019 Spring Instructor, *Interface Engineering of Materials (529-0610-00L)*  
 Enrollment: Graduate 21 Teaching Evaluation (Overall Satisfaction): 4.1/5.0  
 2019 Fall Co-Instructor, *Statistical and Numerical Methods for Chemical Engineers (401-0675-00L)*  
 2020 Spring Instructor, *Interface Engineering of Materials (529-0610-00L)*  
 Enrollment: Graduate 19 Teaching Evaluation (Overall Satisfaction): 4.1/5.0  
 2021 Fall (tbd) Instructor, *Mass Transfer (151-0917-00L)*

## PRINCIPAL PUBLICATIONS

- "Multiscale Analysis for Field-Effect Penetration through Two-Dimensional Materials." T. Tian, P. Rice, E.J.G. Santos and C.J. Shih\*, *Nano Lett.* 16(8), 5044, (2016). ([pdf](#)).
- "Ultrapure Green Light-Emitting Diodes Using Two-Dimensional Formamidinium Perovskites: Achieving Recommendation 2020 Color Coordinates" S. Kumar, J. Jagielski, N. Kallikounis, Y.H. Kim, C. Wolf, F. Jenny, T. Tian, C.J. Hofer, Y.C. Chiu, W.J. Stark, T.W. Lee and C.J. Shih\*, *Nano Lett.* 17(9), 5277, (2017). ([pdf](#)).
- "Aggregation-Induced Emission in Lamellar Solids of Colloidal Perovskite Quantum Wells" J. Jagielski, S. Kumar, M. Wang, D. Scullion, R. Lawrence, Y.T. Lee, S. Yakunin, T. Tian, M. Kovalenko, Y.C. Chiu, E.J.G. Santos, S. Lin and C.J. Shih\*, *Sci. Adv.* 3(12), eaaq0208 (2017). ([pdf](#)).
- "Asymmetric Electric Field Screening in van der Waals Heterostructures" L.H. Lee, T. Tian, Q. Cai, C.J. Shih and E.J.G. Santos, *Nat. Commun.* 9, 1271 (2018). ([pdf](#)).
- "Macroscopic Salt Rejection through Electrostatically Gated Porous Graphene" W. Roman, T. Tian, K. Yazda, H.G. Park and C.J. Shih\*, *Nano Lett.* 19(9), 6400 (2019). ([pdf](#)).
- "Electric polarizability as the fundamental variable in the dielectric properties of two-dimensional materials" T. Tian, D. Hughes, L.H. Lee, C.J. Shih, J.N. Coleman, M. Chhowalla and E.J.G. Santos, *Nano Lett.* 20(2), 841 (2020) ([pdf](#)).
- "Scalable Photonic Sources Using Two-Dimensional Lead Halide Perovskite Superlattices" J. Jagielski, S. Solari, L. Jordan, D. Scullion, B. Blülle, Y.T. Li, Y.C. Chiu, B. Ruhstaller, E.J.G. Santos and C.J. Shih\*, *Nat. Commun.* 11, 387 (2020) ([pdf](#)).

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- "Continuous Color Tuning of Single-Fluorophore Emission via Polymerization-Mediated Through-Space Charge Transfer" S. Ye, T. Tian, A.J. Christofferson, S. Erikson, J. Jagielski, Z. Luo, S. Kumar, C.J. Shih, J.-C. Leroux, Y. Bao, *Sci. Adv.*, 7(15), eabd1794 (2021) ([pdf](#)).
  - "Anisotropic Nanocrystal Superlattices Overcoming Intrinsic Light Outcoupling Efficiency Limit in Perovskite Quantum Dot Light-Emitting Diodes" S. Kumar, T. Marcato, F. Krumeich, Y.T. Li, Y.C. Chiu, and C.J. Shih\*, *Nat. Commun.* 13, 2106 (2022) ([pdf](#)).
  - "Stabilization of Lead-Reduced Metal Halide Perovskite Nanocrystals by High-Entropy Alloying" S.F. Solari, L.N. Poon, M. Würle, F. Krumeich, Y.T. Li, Y.C. Chiu, C.J. Shih\*, *J. Am. Chem. Soc.* 144(13), 5864 (2022) ([pdf](#)).