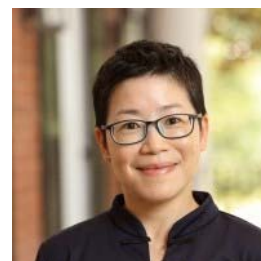# Sharon Tsai-Hsuan Ku

No. 155, Sec 2, Linong St. Beitou Dist.
Taipei City, Taiwan 112304
Tel (O): 886-2-28267028
Fax:886-2-28215949
Email: sharonku@nycu.edu.tw

## EDUCATION

2009   Ph.D.  History & Philosophy of Science
        University of Cambridge, United Kingdom  (Supervisors: Martin Kusch; Simon Schaffer)
2003   M.A.  History of Science
        National Tsing Hua University, Taiwan
1999   M.S.  Physics
        National Chiao-Tung University, Taiwan
1995   B.S.  Electronphysics
        National Chiao-Tung University, Taiwan

## PROFESSIONAL APPOINTMENTS

2022~              Assistant Professor, Institute of Science, Technology & Society
                    National Yang Ming Chiao Tong University
2017-2021          Assistant Professor
                   Department of Engineering & Society, University of Virginia
                   Affiliate faculty at UVA East Asia Center
2013-2017          Assistant Research Professor
                   Department of History & Politics, Drexel University
2011-2013          NSF-funded Postdoctoral Fellow
                   Department of Sociology, University of Southern Indiana, US
2009-2011          Stetten Policy Fellow
                   Office of History, National Institutes of Health, US
2003-2004          Full-time Research Associate
                   Department of Physics, National Tsing Hua University, Taiwan
2000-2001          Full-time Research Associate
                   Department of Sociology, National Taiwan University, Taiwan

## RESEARCH INTERESTS

Sociology of standardization; Science & Technlogy in US and China with speicial topics in
nanotechnology and environment; Global Engineering studies

**TAUGHT COURSES**

Self, Nature and the Changing Globe: Taiwan-US Global Classroom (2022)
Engineers, Self, & the Changing Globe: NYCU-UVA Global Classroom (2022)
International Summer Course: Engineering Ethics in US and Chinese Contexts (invited lecture in Shan Dong University, 2021)
STS and Engineering Practice (2017-2020)
International Standards & Global Governance (2018)
Engineering Ethics and Responsibility in Global Context (2018-2021)
Technology and World Community (2017)
Technology in Historical Perspectives (2015-2016)
Standardization in Action: A Global Perspective (2016)


**PUBLICATIONS**

Ku, Sharon & Zehr, Stephen (2022). 'Disciplining Interdisciplinarity: Infrastructure, Identity, and Interdisciplinary Practice in NanoELSI Research'. *Science and Public Policy*. https://doi.org/10.1093/scipol/scac025 (SSCI)

Ku, Sharon (2021) Instrumental Lives: An Intimate Biography of an Indian Laboratory, East Asian Science, Technology and Society: An International Journal, 15:3, 402-407.

Ku, Sharon (2020) International Standards. In Martin J & Mody C. eds *Between Making and Knowing*. Word Scientific. P. 181-193.

Ku, Sharon (2019) "Room at the Bottom: The Techno-bureaucratic Space of Gold Nanoparticle Reference Material" in Slaton, A. ed. *New Materials: Towards a History of Consistency*. Lever Press. p 73-118.

Hendren, Chrisitine & Ku, Sharon. (2019) The Interdisciplinary Executive Scientist: Connecting Scientific Ideas, Resources and People. In: Hall K., Vogel A., Croyle R. (eds) *Strategies for Team Science Success*. Springer, Cham. p. 363-374

Ku, Sharon (2019). "When Eagle and Dragon Learn Together: Engineering Ethics Education in the Era of US-China Trade War", *American Society of Engineering Education*. DOI: 10.18260/1-2—33557

Ku, Sharon (2018) Standardization in Action: A Critical Path for Translational STEM Education at Drexel University. *Standards Education*. p. 11-17.

Odumosu, T., & Ferguson, S., & Foley, R. W., & Neeley, K. A., & Wylie, C. D., & Ku, Sharon, & Berne, R. W. (2018), Dimensions of Diversity in Engineering: What We Can Learn from STS. In 2018 Proceeding of American Society of Engineering Education. DOI: 10.18260/1-2—30336

Ku. Sharon & Klaessig, Federick. (2015) "A matter of size does not matter: Material agency and the state authority in nanotechnology standardization" in Schlaudt & Huber eds. Standardization in Measurement: Philosophical and Sociological Issues. Pickering and Chatto: London.  p. 189-206.

Ku, Sharon. (2012) "Forming interdisciplinary expertise: One organization's journey on the road to translational nanomedicine", WIREs Nanomedicine and Nanotechnology 4: 366-377. (SCI)

Lin D.S., Ku,S., and Chen R.P. (2000) "Interaction of Phosphine with Si (100) from core-level photoemission and scanning-tunneling-microscopy", *Phys. Rev. B* 61: 2799-2805. (SCI)

Lin, D.S., Ku, S., Sheu, T.J. (1999) "Thermal reactions of Phosphine with Si (100): a combined photoemission and scanning-tunneling-microscopy study", *Surface Science* 424: (1) 7-18. (SCI)

## CONFERENCE PRESENTATION

Ku, S.; Ferguson, Sean; Powell, Dana; Witter, Rebecca; Fortun, Kim (2022) Global Classroom, Critical Pedagogy and Decolonial STS Praxis. 4s/ESOCITE Joint Meeting, Mexico, December 7th and 10th, 2022.

Ku, S (2002) STS and Engineering Education: A Global Dialogue. Roundtable in 2022 Taiwanese STS Annual Conference, Hualien, September 17-18, 2022.

Ku, S., Trail, J. Ferguson S., Ezell, S and Kingemeier. Performing Arts as Contemplative Pedagogy Intervention in Engineering Ethics Course. 2nd Seminar on Contemplation, Performing arts and Coexistence. Brazil. May 17-21, 2021.

From Digital Silos to City Brain: The Socio-technical Imgination and Design of Smart City in China. Paper presented in 2019 4S Annual Meeting, New Orleans. Sep3-7, 2019

Charlottesville's open data as an opportunity for STS-informed techno-democracy. Paper accepted by Questioning Science in Uncertain Times: A Workshop at The Ohio State University (Coauthored with Caitlin Wylie, Tolu Odumosu, Sean Ferguson) Feb 15-16, 2018.

R. Berne, S. Ferguson, R. Foley, T. Ku, K. Neeley, T. Odumosu, B. Whiteley, C. Wylie (2018) Dimensions of Diversity in Engineering: What We Can Learn from STS. 2018 ASEE paper.

From Mindless Rule-follower to Mindful Rule-maker: Teaching Power, Values and Innovation through International Standard Education. Paper accepted by 2018 ASEE Annual Conference & Exposition.

When Traditional Chinese Acupuncture Meets Working Class American: The Community Acupuncture Movement in the US. Paper presented in Mid-Atlantic Asian Studies Conference. Philadelphia, October 5-7, 2017.

Standardization in Action: A Critical Interface of Life Sc20nce, Society and STEM Education. Paper presented at the 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Orlando, FL. August 16-20, 2016 (Co-authored with Banu Onaral).

Typically, But Not Exclusively: Interactional Expertise, Language Use and the Politics of Nanotechnology Terminologies Standardization. Paper presented at Society for Philosophy of Science in Practice (SPSP) Sixth Biennial Conference, Rowan University, June17-19.

Multi-sited Ethnography as a Mode of Integration: A case study of Nanotechnology. Science of Team Science Conference, Phoenix, AZ. May 16-19, 2016.

Establishing a Professional Community of Practice & Research for Interdisciplinary Science Specialists, Science of Team Science Conference, Phoenix, AZ. May 16-19, 2016. (Co-authored with Christine Hendren)

From Ordinary Tool to State-of-the-art Technology: Zeta Potential as a Proxy for Nanoinformatics Community Integration. Fourth Annual Conference Sustainable Nanotechnology Organization. Portland, OR, November 8-10, 2015.

Gift or commodity? Data and database building in nanomedicine. Paper presented at the Society for the Study of Nanoscience and Emerging Technologies (S.NET), Boston, October 27-29, 2013

Interdisciplinary collaboration in social scientist directed research: Infrastructure and interdisciplinary identity, Poster presented at the 19th Annual CNSF Capitol Hill Exhibition, Washington DC. May 7, 2013

A matter of size does not matter: The social construction and application of gold nanoparticle standard. Paper presented at the International Conference of Dimensions of Measurement, University of Bielefeld, Germany, March 14-16, 2013.

## GRANTS

| | |
|---|---|
| 2022 | PI. Critical Pedagogy in Action: Building a Walking Classroom and Walking Teacher Global Community, Taiwan MoE Cross-University Teaching Community Grant. |
| 2019 | PI, Center of Teaching Exellence Thrive Grant: Global Smart City Design. |
| 2018 | PI, CGII Research Grant: From Great Wall to New Silk Road: Global Innovation, Sustainability and International Standardization in US-China Relations. Center of Global Innovation and Inquiries (12/01/2018-06/30/2020) |
| 2018 | Co-PI, CGII Research Grant: The Assessment of China Belt & Road Initiative (PI: Dorothy Wong, 12/01/2018-06/30/2020) |
| 2018 | PI, National Institute of Standards and Technology Education Grant: Standard Aligned Design of Sustainable Smart City (Grant Period: 09/01/2018-08/31/2020) |
| 2018 | PI, 3 Cavaliers: The Geopolitics of Sustainability & Smart City Construction in USChina Relations (10/01/2018-9/30/2020) |
| 2017 | Travel Grant, East Asia Research Center, University of Virginia |
| 2017 | PI, Center of Global Inquries and Innovation Grant: Responsible Research Innovation: UVA-Tsinghua Global Classroom (12/01/2017-11/30/2018) |
| 2016 | PI, National Institute of Standards and Technology Education Grant: Standardization in Action, A Translational Curriculum (Grant Period: 09/01/2016-02/01/2018) |
| 2014 | Co-PI NIST Education Grant: Standards & Society (PI: Amy Slaton, Drexel University. Grant Period: 02/01/2015-12/31/2016,) |

## AWARD

| | |
|---|---|
| 2019 | Best Curriculum Design, Center of Teaching Exellence, UVA |
| 2018 | Ignite Fellow, Center of Teaching Exellence |
| 2008 | Chang Ching-kuo Foundation Ph.D Dissertation Fellowship |
| 2004-2007 | MOE Fellowship, Taiwan |
| 2002 | Best Master Thesis, Ministy of Education, Taiwan. |

## PROFESSIONAL SERVICE

| | |
|---|---|
| 2020 | National Science Foundation, Panel Reviewer |
| 2019 | Working Group Chair for Global Smart Cities and Global Ethics in the Assessement of Belt & Road Initiative, UVA East Asia Center |
| 2019 | Panel organizer of "Infrastructures as Relational Encounters: Global Smart Cities Development" in 2019 4S Annual Conference, New Orlean |

| | |
|---|---|
| 2019 | Organizer of International Workshop on Global Engineering Ethics, September 1$^{st}$ 2019, University of Virginia. |
| 2019 | Organizer of the 2nd UVA International Standards Education Symposium "To Standardize or Not, That is the Question: Interdisciplinary and University-Community Dialogue on Smart Cities. April 18-19, 2019 |
| 2019 | ASEE Reviewer |
| 2018 | Organizer of Workshop "Cultures, Ethics And Engineering Design In The Era Of AI: A Conversation with IEEE Global Initiative", Oct 5th, 2018, University of Virginia. |
| 2018 | IEEE Ethically-Aligned-Dsign Curriculum Development Committee |
| 2018 | Organizer of the 1st UVA Standard Education Symposium, "Exploring Education, Ethics, and Innovation Opportunities with Standards Development Organizations", March 29, 2018 |
| 2015-2016 | US-EU NanoEHS Workshop Planning Committee |
| 2014-2017 | ISO TC229 Nanotechnologies Technical Committee Member 2011-2015 |

ASTM E56 Nanotechnologies Technical Committee Member


## LANGUAGE

English; Chinese (Native/Bilingual)