Curriculum Vitae

Chieh-Szu (Jesse) Huang
*D19, 7 Charles Babbage Road, CB30FT, Cambridge *0044-781-876-629 *csh67@cam.ac.uk

Education

University of Cambridge Mar. 2023 – now
Postdoc – SNSF Postdoc.Mobility in the Department of Chemical Engineering and Biotechnology
Eidgenössische Technische Hochschule Zürich (ETHZ), Switzerland Jan. 2018 – Jul. 2022
Ph. D. in the Department of Chemistry and Applied Biosciences
Thesis co-supervised in Empa, Swiss Federal Laboratories for Materials Science and Technology
National Cheng Kung University (NCKU), Taiwan Sep. 2014 – Jul. 2016
M.S. in the Department of Electrical Engineering (EE)
National Cheng Kung University (NCKU), Taiwan Sep. 2010 – Jun. 2014
B.S. in the Department of Materials Science and Engineering (MSE)

Exchange and Research Intern

Fudan University Jan. 2020 – Mar. 2020
Ph.D. - Swiss Secretariat for Education, Research and Innovation (SERI) collaboration
King Abdullah University of Science and Technology (KAUST) Mar. 2016 – Jun. 2016
M.S. - Research Intern in the Department of Physical Science and Engineering
Czech Technical University in Prague (CTU) Jan. 2013 – Jun. 2013
B.S. - Exchange Student in the Department of Mechanical Engineering

Research Experiences and Technical Skills

SNSF Postdoc.mobility Research Mar. 2023 – now
Research topic Amphiphilic Polymer Conetworks (APCNs) Integrated Photovoltaics
Advisors Prof. Dr. Sam Stranks (University of Cambridge)
Technical skills polymeric nanocomposite coating, PVs fabrication, thin film characterizations

Ph.D. Research Jan. 2018 – Jul. 2022
Research topic Wearable Luminescent Solar Concentrators
Advisors Dr. Luciano Boesel (Empa) and Prof. Dr. Maksym Kovalenko (Empa, ETH D-CHAB)
Technical skills spin/ dip coating, electrospinning, SEM, AFM, SAXS, FTIR, PL, TRPL

Sino Swiss SERI collaboration Jan. 2020 – Mar. 2020
Research topic Energy Harvesting Textiles
Advisors Dr. Luciano Boesel (Empa) and Prof. Dr. Xuemei Sun (Fudan University)
Technical skills wearables, PVs; Monte-Carlo ray tracing

Work Experience Jul. 2017 – Dec. 2017
R&D engineer at Applied Materials, Inc.
Developing PVD process for next-generation display; solving scientific and technical issues for customers.
Technical skills PVD, evaporators, FIB, SEM, TEM, XPS, GIWAXS, XRR

Graduate Research Sep. 2014 – Jul. 2016
Research topic Non rare earth red-emitting phosphor: a combined experimental and *Ab Initio* study
Advisors Prof. Dr. Cheng-Liang Huang (NCKU, EE) and Prof. Dr. Shih-kang Lin (NCKU, MSE)
Technical skills PVD, XRD, XANES, PL; first principle calculation, VASP, DOS, e-bands

Research Intern Mar. 2016 – Jun. 2016
Project topic Gas Molecules Adsorption on Borophene: A First-Principles Study
Advisor Prof. Dr. Udo Schwingenschlögl (KAUST, PSE)
Technical skills first principle calculation, VASP, DOS, e-bands, isosurface

Undergraduate Research Jan. 2012 – Jan. 2013
Research topic Synthesis and characterizations of nitrogen doped graphene on Cu-Ni Alloy
Advisor Prof. Dr. Jow-Lay Huang (NCKU, MSE)
Technical skills CVD, SEM, Ramen

Honors and Awards

- Fellowship, PostDoc.Mobility, Swiss National Science Foundation (SNSF), 2022
- Patent, Solar energy harvesting textiles, 20211111119968.2, 2021
- Granted, Innosuisse Project "Wood4Light" (57197.1 INNO-EE), 2021
- Cover, Empa annual report, 2020
- Fellowship, SERI Sino Swiss Science and Technology Cooperation "EnerTex" (5211.01745), 2019.
- Top 5%, Applied Materials Inc., Annual Engineering and Technology Conference, 2017
- First Prize, Xu Ziran Award, Taiwan Ceramics Society, 2016.
- Fellowship, Visiting Research Intern, King Abdullah University of Science and Technology, 2016.

Extracurricular Experiences and Leadership Qualifications

ETH

- Director of PolyHACK 2020, ETH Telejob (https://polyhack.ch)
- Organizer of Empa PhD symposium 2019
- Public Relations, ETH Telejob (https://telejob.ch)

NCKU

- President NCKU MSE student association (2012 Q3, Q4)
- Director NCKU MSE camp (2011 Q1, Q2) and NCKU MSE night (2012 Q1, Q2)
- Member Future Elites at the College of Engineering, NCKU (30 students selected per year) (2014)
- Exchange Student Czech Technical University in Prague (CTU) (2013 Q1, Q2)

Selected Publications

First author

- Huang, C.-S., et al. (2022). Amphiphilic polymer conetwork: a versatile matrix for tailoring the photonic energy transfer in wearable energy harvesting devices. *Advanced Energy Materials*, 2200441.
- Huang, C.-S., et al. (2021). Energy harvesting textiles: using wearable luminescent solar concentrators to improve the efficiency of fiber solar cells. *Journal of Materials Chemistry A*, 9(46), 25974-25981. (top 2% paper of 2021)
- Huang, C.-S., et al. (2020). Nano-domains assisted energy transfer in amphiphilic polymer conetworks for wearable luminescent solar concentrators. *Nano Energy*, 76, 105039.
- Huang, C.-S., et al. (2018). *Ab initio*-aided sensitizer design for Mn^{4+}-activated Mg_2TiO_4 as an ultrabright fluoride-free red-emitting phosphor. *Chemistry of Materials*, 30(5), 1769-1775.
- Huang, C.-S., et al. (2018). Adsorption of the Gas Molecules NH_3, NO, NO_2, and CO on Borophene. *The Journal of Physical Chemistry C*, 122(26), 14665-14670.

Selected Conference Presentations

- C.-S. Huang (Oral), et al. "Amphiphilic Polymer Conetworks—Wearable and High Energy Transfer Rate LuminescentSolar Concentrators for Fiber Dye-Sensitized Solar Cells," *2022 MRS Spring*, Honolulu Hawaii, USA (May., 2022)
- C.-S. Huang (Poster/ Flash talk), et al. "Nanocomposite assisted FRET for luminescent solar concentrators," *Swiss Nano Convention 2021*, Lausanne, Switzerland. (Jun., 2021)
- C.-S. Huang (Invited Talk), et al. "Nano-domains assisted energy transfer in amphiphilic polymer conetworks for wearable luminescent solar concentrators," *International School on Smart Materials for Energy Conversion*, TU Chemitz. (Nov., 2020)
- C.-S. Huang (Oral), et al. "An Experimental and Computational Approach to Properties of Mg_2TiO_4: Mn^{4+} Red Emitting Phosphor," *The Minerals, Metals and Materials Society (TMS) Annual Meeting*, Nashville Tennessee, USA. (Feb., 2016)

Hobbies

- Active acoustic/ electric guitar player: Eric Clapton, GunsN'Roses (Slash), PinkFloyd (David Gilmour)
- Violin player: Antonio Vivaldi
- Table tennis
- Traveling/ hiking: back-packing 45 countries and on-going