CURRICULUM VITAE

Dr. Junke Wang

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EDUCATION

PhD in Chemistry – Eindhoven University of Technology, The Netherlands **2016 – 2020**
Dissertation: "Interfacial, Compositional and Morphological Engineering for Single- and Multi-junction Perovskite Solar Cells"
Supervisor: Prof. René A.J. Janssen

MSc in Chemical Engineering – Eindhoven University of Technology, The Netherlands **2014 – 2016**
Dissertation: "Sequential Deposition Method for Planar Perovskite Solar Cells"
With great appreciation

BE in Materials Science and Engineering – Central South University, China **2009 – 2013**
Cum Laude

ACADEMIC APPOINTMENTS

Postdoc, Marie-Curie Fellow, University of Oxford (Supervisor: Prof. Henry J. Snaith) **2023 – 2026**

- Lead research on hybrid wide-bandgap semiconductors for high-efficiency multi-junction solar cells
- Secured £200,512 funding from the UKRI for Guarantee Funding for Marie-Curie Fellowship

Postdoc, jointly between University of Toronto (Prof. Edward H. Sargent) and Eindhoven University of Technology (Prof. René A.J. Janssen) **2020 – 2023**

- Developed stable high-bandgap perovskite materials for all-perovskite triple-junction solar cells
- Conducted research on perovskite-based tandem photovoltaics for solar-driven water splitting

PhD Candidate, Eindhoven University of Technology (Supervisor: Prof. René A.J. Janssen) **2016 – 2020**

- Conducted research on hybrid semiconductors for solar energy storage, photodiodes, and light-driven CO_2 reduction
- Developed prototype all-perovskite triple-junction solar cells
- Supervised PhD/Master students and contributed to teaching undergraduate chemistry courses

RESEARCH INTERESTS

- Perovskite multijunction solar cells

- Light-trapping nanostructures for photovoltaics
- Operando characterization techniques for optoelectronics (XRD, XPS, TEM, CL, optical Spectroscopy)
- Sustainable materials and renewable energy technologies

AWARDS & GRANTS

Marie Curie Postdoctoral Fellowship (UKRI Guarantee, EP/Y029216/1, £200,512) **2023**

The 2020 Chinese Government Award for Outstanding Self-financed Students Abroad (US$6k) **2021**

Amandus H. Lundqvist Scholarship Program, Eindhoven University of Technology, The Netherlands (~€36k) **2014**

TEACHING EXPERIENCE

- Teaching assistant for third-year undergraduates in chemistry (Design-based Energy Course, 3 semesters, TU/e)
- Co-supervised 2 masters' thesis and 2 bachelors' thesis (TU/e)
  Alessandro Caiazzo, dissertation "*Multidimensional perovskite solar cells*"
  Hiten Tarpara, dissertation "*Pb-Sn based ideal-bandgap perovskite solar cell*"
  Ronald de Bruijne, dissertation "*Fabrication of stable pure-phase $FAPbI_3$ perovskites for photovoltaic applications*"
  Jasper Slingerland, dissertation "*Development of All-Bromide Pb-Sn Hybrid Wide Bandgap Perovskite Solar Cells*"

INTERNATIONAL CONFERENCES

Oral presentation at the MRS Fall Meeting 2025, United States **2025**

Oral presentation at the TandemPV Workshop 2025, Belgium **2025**

Invited talk at the Solar Energy Seminar at Helmholtz-Zentrum Berlin, Germany **2025**

Oral presentation at the MRS Fall Meeting 2024, United States **2024**

Oral presentation at the SPIE Optics + Photonics 2024, United States **2024**

Oral presentation at the TandemPV Workshop 2024, The Netherlands **2024**

Oral presentation at the 6th International Conference on Perovskite Solar Cells and Optoelectronics, United Kingdom **2023**

Oral presentation at the MRS Fall Meeting 2022, Virtual **2022**

Oral presentation at the MRS Spring Meeting 2022, Virtual **2022**

Oral presentation at the nanoGe Spring Meeting, Virtual **2021**

Oral presentation at the 5th International Conference on Perovskite Solar Cells and Optoelectronics, Switzerland **2019**

Poster award at the International Conference on Hybrid and Organic Photovoltaics, Spain **2018**

MEDIA OUTREACH

CNN.com — Razor-thin solar panels could be 'ink-jetted' onto your backpack or phone for cheap clean energy

MSN.com	Solar energy breakthrough could mean solar panels will be a thing of the past
PV Magazine	All-perovskite triple-junction solar cell achieves 25.1% efficiency via new passivation technique
PV Magazine	Triple junction perovskite cell hits 16.8% efficiency

PUBLICATION LIST

- **Wang J.**,† Hu S.,† Gu X.,† Truong M.A.,† Yang Y.,† Ning Z., Wakamiya A., Snaith H.J., Chen H. et al. *Homogenised Optoelectronic Properties in Perovskites: Achieving High-Efficiency Solar Cells with Common Chloride Additives*. Journal of the American Chemical Society, 2026, 148, 6229. https://pubs.acs.org/doi/10.1021/jacs.5c18303
- Liu Y.,† **Wang J.**,† Snaith H.J., Chen S. et al. *Stabilized perovskite ink for scalable coating enables high-efficiency perovskite modules*. Science Advances, 2026, 12, eaec0915. https://www.science.org/doi/10.1126/sciadv.aec0915
- **Wang J.**,† Hu S.,† Chen Z.†, Snaith H.J. et al. *Exposing binding-favourable facets of perovskites for tandem solar cells*. Energy & Environmental Science, 2025, 18, 7680. https://pubs.rsc.org/en/content/articlelanding/2025/ee/d5ee02462e
- Hu S.,† **Wang J.**,† Wakamiya A., Snaith H.J. et al. *Steering tin–lead perovskite precursor solutions for multijunction photovoltaics.* Nature, 2025, 639, 93. https://doi.org/10.1038/s41586-024-08546-y
- **Wang J.**,† Branco B.,† Janssen R.A.J. et al. *All-perovskite tandem photovoltaics in light-driven electrochemical water splitting*. Nature Communications, 2025, 16, 174. https://doi.org/10.1038/s41467-024-55654-4
- **Wang J.**,† Zeng L.,† Zhang D.,† Maxwell A.,† Chen H.,† Janssen R.A.J., Sargent E.H. et al. *Halide homogenization for low energy loss in 2-eV-bandgap perovskites and increased efficiency in all-perovskite triple-junction solar cells*. Nature Energy, 2024, 9, 70. https://www.nature.com/articles/s41560-023-01406-5
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- Gómez P.,† **Wang J.**,† Más-Montoya M., Bautista D., Weijtens C.H.L., Curiel D., Janssen R.A.J. *Pyrene-based small molecular hole transport layers for efficient and stable narrow-bandgap perovskite solar cells*. Solar RRL, 2021, 5, 2100454. https://onlinelibrary.wiley.com/doi/full/10.1002/solr.202100454
- **Wang J.,** Zardetto V., Datta K., Zhang D., Wienk M.M., Janssen R.A.J. *16.8% Monolithic All-perovskite Triple-junction Solar Cells via A Universal Two-step Solution Process*. Nature Communications, 2020, 11, 5254. https://www.nature.com/articles/s41467-020-19062-8
- **Wang J.**, Datta K., Li J., Verheijen M.A., Zhang D., Wienk M.M., Janssen R.A.J. *Understanding the Film Formation Kinetics of Sequential Deposited Narrow-Bandgap Pb–Sn Hybrid Perovskite Films.* Advanced Energy Materials, 2020, 10, 2000566. https://onlinelibrary.wiley.com/doi/full/10.1002/aenm.202000566
- **Wang J.**, Datta K., Weijtens C.H.L., Wienk M.M., Janssen R.A.J. *Insights into fullerene passivation of SnO_2 electron transport layers in perovskite solar cells.* Advanced Functional Materials, 2019, 29, 1905883. https://onlinelibrary.wiley.com/doi/full/10.1002/adfm.201905883

- **Wang J.** et al. *Highly Efficient Perovskite Solar Cells Using Non-Toxic Industry Compatible Solvent System*. Solar RRL, 2017, 1, 1700091. https://onlinelibrary.wiley.com/doi/full/10.1002/solr.201700091
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References

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