

# Ady Suwardi

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🌐 : [www.sustainablethermoelectrics.com](http://www.sustainablethermoelectrics.com) ;  
<https://scholar.google.co.uk/citations?user=l5vk9fgAAAAJ&hl=en>

🎓 : 2018 (PhD)

Referees: **Prof. Judith Driscoll**, University of Cambridge, U.K. ([jld35@cam.ac.uk](mailto:jld35@cam.ac.uk));  
**Prof. Loh Xian Jun**, IMRE, A\*STAR, Singapore ([lohxi@imre.a-star.edu.sg](mailto:lohxi@imre.a-star.edu.sg)).

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## OVERVIEW

Ady Suwardi is currently a group leader in IMRE, A\*STAR and Asst. Prof. in MSE, NUS, Singapore. He has published over 50 papers, with > 20 corresponding/first authored papers. He is currently a group leader in IMRE, and also a faculty in NUS, Singapore. His main research area focuses on thermal and electronic properties of energy materials, as well as their device applications. For his research works, he was awarded *Nanoscale* Emerging Investigator 2022. In terms of scientific services, he currently serves as ECR Editorial Board in *Materials Today Energy*, Youth Editorial Board in *Soft Science*, and as guest editor in *Crystals*, *ChemNanoMat*, and *Frontiers in Chemistry*. He has also been awarded outstanding reviewer of *Journal of Materials Chemistry A* 2020.

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## CAREER

### ❖ Institute of Materials Research and Engineering (IMRE), A\*STAR

Deputy head of department – Soft Materials	Sep 2020 – Present
Scientist	Oct 2017 – Present
Specialist (research engineer)	Aug 2012 – Aug 2013

### ❖ Materials Science and Engineering, National University of Singapore (NUS)

Assistant Professor	May 2021 – Present
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## EDUCATION

### ❖ University of Cambridge, United Kingdom

Ph.D. in <i>Materials Science</i>	October 2013 – April 2018
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Advisor: **Prof. Judith MacManus Driscoll** (Cambridge, U.K.)

Examiners: **Prof. Zoe Barber** (Cambridge, U.K.) and **Prof. Joe Briscoe** (Queen Mary University of London).

### ❖ Nanyang Technological University (NTU)

B.Eng in <i>Materials Engineering (First Class Honours)</i>	August 2008 – July 2012
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Double minor in *Physics* and *Environmental Management*

Mentors: **Prof. Hng Huey Hoon** and **Prof. Lam Yeng Ming**.

## ACADEMIC SERVICES

- ❖ **Early Career Researcher (ECR) Editorial Board** of *Materials Today Energy*.
  - ❖ **Youth Editorial Board** of *Soft Science*.
  - ❖ Guest editor for the following journals: *Crystals*, *ChemNanoMat*, *Frontiers in Chemistry*.
  - ❖ Outstanding Reviewer Award from *Journal of Materials Chemistry A* 2020.
  - ❖ Active peer reviewer in > 10 journals and ~ 100 reviews.
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## RESEARCH GRANTS

- ❖ Lead PI of 2021 Singapore Aerospace Program for project “Thermoelectrics for Commercial Aircraft Applications” worth S\$380,000.00 for 2 years.
  - ❖ Project leader of 2021 industrial RCA (research collaboration agreement) between IMRE, A\*STAR and Redbox Pte.Ltd. worth S\$100,000.00 for 1 year.
  - ❖ Lead PI of 2020 A\*STAR Career Development Fund (CDF) for project “Brain-inspired Vision Sensors” worth S\$300,000.00 for 3 years.
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## RESEARCH INTERESTS

- ❖ Designing next-generation energy materials via additive manufacturing.
  - ❖ Electronic and thermal properties materials for cooling and energy harvesting.
  - ❖ Semiconductor reprocessing for e-waste upcycling and circular economy.
  - ❖ Functional and energy materials and device physics for flexible electronics.
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## ACADEMIC AWARDS & SCHOLARSHIPS

- ❖ **Nanoscale Emerging Investigator Award 2022.**
- ❖ A\*STAR Graduate Scholarship (overseas) 2013-2017.
- ❖ President Research Scholarship 2011.
- ❖ SembCorp Undergraduate Scholarship 2008 – 2012.
- ❖ Ian Ferguson Innovation Award 2011.
- ❖ Gold Medalist of 2008 IOAA (International Olympiad on Astronomy and Astrophysics).

## CONFERENCES AND INVITED TALKS

- ❖ Invited for global young scientists summit (GYSS) Singapore, 2022.
  - ❖ **Invited Talk** and **Session Chair** for ICEM (International Conference on Energy Materials) 2021.
  - ❖ **Invited Talk** and **Session Chair** for VCT (Virtual International Conference of Thermoelectrics) 2020.
  - ❖ Oral presentation in MRS Fall Meeting, Boston, December 2019.
  - ❖ Oral presentation and poster in 10<sup>th</sup> ICMAT, Singapore, June 2019.
  - ❖ Oral presentation and poster in 9<sup>th</sup> ICMAT, Singapore, June 2017.
  - ❖ Best poster award in ISAF Conference Darmstadt, Germany, August 2016.
  - ❖ Poster presentation in 5<sup>th</sup> M3 meeting, Singapore, August 2015.
  - ❖ Poster presentation in ICMR mini school & workshop at UCSB, August 2014.
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## SELECTED PUBLICATIONS

\* : *equal first authorship*; ✉ : *corresponding authorship*. Full list in [Google Scholar](#).

1. **A. Suwardi**, F. Wang, K. Xue, M. Y. Han, P. Teo, P. Wang, S. Wang, Y. Liu, E. Ye and Z. Li, *Advanced Materials*, 2021, 2102703.
2. N. Jia, J. Cao, X. Y. Tan, J. Dong, H. Liu, C. K. I. Tan, J. Xu, Q. Yan, X. J. Loh and **A.Suwardi**<sup>✉</sup>, *Materials Today Physics*, 2021, 21, 100519. *ESI highly cited 2021*.
3. J. Cao, S. W. Chien, X. Y. Tan, C. K. I. Tan, Q. Zhu, J. Wu, X. Wang, Y. Zhao, L. Yang and **A.Suwardi**<sup>✉</sup>, *ChemNanoMat*, 2021, 7, 476-482.
4. L. Hu, Y. Luo, Y. W. Fang, ..., **A. Suwardi**, H. Xie, J. Liu, J. Dong, A. Sanson and M. Giarola, *Advanced Energy Materials*, 2021, 11, 2100661.
5. L. Hu, Y.-W. Fang, F. Qin, ... **A. Suwardi**, X. Zhao, Y. Luo, D. V. M. Repaka, W. Luo, A. Suwardi and T. Soldi, *Nature communications*, 2021, 12, 1-10.
6. C. Jing, X. Y. Tan, N. Jia, D. Lan, S. F. D. Solco, K. Chen, S. Chien, H. Liu, C. K. I. Tan and **A.Suwardi**<sup>✉</sup>, *Nanoscale*, 2021.
7. W. Y. S. Lim, D. Zhang, S. S. F. Duran, X. Y. Tan, C. K. I. Tan, J. Xu and **A.Suwardi**<sup>✉</sup>, *Frontiers in Physics*, 2021, 683.
8. W. Y. S. Lim, D. Zhang, S. S. F. Duran, X. Y. Tan, C. K. I. Tan, J. Xu and **A.Suwardi**<sup>✉</sup>, *Frontiers in Materials*, 2021, 476.

9. N. Jia, J. Cao, X. Y. Tan, J. Zheng, S. W. Chien, L. Yang, K. Chen, H. K. Ng, S. S. F. Duran and **A. Suardi**<sup>✉</sup>, *Journal of Materials Chemistry A*, 2021, 9, 23335-23344. *selected for back cover of the issue*
10. **A. Suardi**\*, C. C. Ooi\*, D. Daniel, C. K. I. Tan, H. Li, O. Y. Z. Liang, Y. K. Tang, J. Y. Chee, A. Sadovoy and S.-Y. Jiang, *Research*, 2021, 2021. *Highlighted by A\*STAR research magazine and Straits Times.*
11. F. Yang, J. Wu, **A. Suardi**, Y. Zhao, B. Liang, J. Jiang, J. Xu, D. Chi, K. Hippalgaonkar and J. Lu, *Advanced Materials*, 2021, 33, 2004786. *selected for inside cover of the issue*
12. X. Wang, **A. Suardi**, S. L. Lim, F. Wei and J. Xu, *NPJ Flexible Electronics*, 2020, 4, 1-9.
13. **A. Suardi**, J. Cao, Y. Zhao, J. Wu, S. Chien, X. Tan, L. Hu, X. Wang, W. Wang and D. Li, *Materials Today Physics*, 2020, 14, 100239.
14. **A. Suardi**, L. Hu, X. Wang, X. Y. Tan, D. V. M. Repaka, L.-M. Wong, X. Ni, W. H. Liew, S. H. Lim and Q. Yan, *ACS applied materials & interfaces*, 2020, 12, 9150-9157.
15. J. Recatala-Gomez\*, **A. Suardi**\*, I. Nandhakumar, A. Abutaha and K. Hippalgaonkar, *ACS Applied Energy Materials*, 2020, 3, 2240-2257.
16. **A. Suardi**, S. H. Lim, Y. Zheng, X. Wang, S. W. Chien, X. Y. Tan, Q. Zhu, L. M. N. Wong, J. Cao and W. Wang, *Journal of Materials Chemistry C*, 2020, 8, 16940-16948.
17. **A. Suardi**, J. Cao, L. Hu, F. Wei, J. Wu, Y. Zhao, S. H. Lim, L. Yang, X. Y. Tan and S. W. Chien, *Journal of Materials Chemistry A*, 2020, 8, 18880-18890.
18. **A. Suardi**, D. Bash, H. K. Ng, J. R. Gomez, D. M. Repaka, P. Kumar and K. Hippalgaonkar, *Journal of Materials Chemistry A*, 2019, 7, 23762-23769.
19. **A. Suardi**, B. Prasad, S. Lee, E.-M. Choi, P. Lu, W. Zhang, L. Li, M. Blamire, Q. Jia and H. Wang, *Nanoscale*, 2016, 8, 8083-8090.
20. L. P. Tan, T. Sun, S. Fan, L. Y. Ng, **A. Suardi**, Q. Yan and H. H. Hng, *Nano Energy*, 2013, 2, 4-11.

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## TECHNOLOGY DISCLOSURES AND PATENTS

- ❖ **A. Suardi**, C.K.I. Tan, “Small exhaust fan for surgical mask breathing comfort” Singapore patent no. 10202111160T on 07 October 2021.
- ❖ TD 2020093 Self-powered cooling system for indoor agriculture/greenhouse.
- ❖ TD 2021058 A self-powered thermoelectric system for LED cooling.

- ❖ TD 2021034 Particle filtration system for cleaner air.
  - ❖ TD 2021035 Design and method of homemade fan-fitted air purifier from common household materials.
  - ❖ TD 2021036 Technology and method to detect, quantify, and analyze aerosol transmission.
  - ❖ TD 2021054 Small exhaust fan for surgical mask breathing comfort.
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## SUPERVISION / TALENT DEVELOPMENT

- ❖ Group leader leading a team of 1 research fellow and 2 research officers.
  - ❖ PhD supervisor for Kivanc Saglik and Sophie Guillemot.
  - ❖ Supervisor for Ong Kai (SIT intern), Sia Seng Ann (NTU intern).
  - ❖ IMRE host for Ning Jia and Jinfeng Dong (visiting scientists from NTU MSE).
  - ❖ IMRE host for Lan Yang, Chu Zhang, and Yong Wang (visiting Ph.D. students from NTU MSE).
  - ❖ IMRE host for Dr. Zhao Yunshan (visiting scientists from NTU MSE).
  - ❖ IMRE host for Dr. Hu Lei (visiting scientists from NTU MSE).
  - ❖ Supervisor for Yap Shou Xuan (FYP student from NUS with Prof. Ariando).
  - ❖ IMRE host for Khang Ngoc Dinh (visiting Ph.D. student from NTU MSE).
  - ❖ Supervisor for Michael Darmawan (FYP student from NTU).
  - ❖ Supervisor for Marcella Marissa (FYP student from NTU).
  - ❖ Supervisor for Amol Paranjape (intern from Cornell University).
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## SCIENCE OUTREACH

- ❖ Invited speakers (3 sessions) for AGA (A\*STAR Graduate Academy) webinars to secondary school students 2021.
  - ❖ Panelist for Singapore Science and Engineering Fair (SSEF) 2020.
  - ❖ Judge for Science Buskers Audition 2019.
  - ❖ Judge for Raffles Symposium 2019.
  - ❖ Demonstrator for One-North Festival lab tours and workshops 2018.
  - ❖ University of Cambridge Annual Science Festival 2015.
  - ❖ Supervisor for Scientists-in-school program 2013.
  - ❖ MSE Eduweek Speaker 2012.
  - ❖ Organizer of Astro Challenge astronomy competition for JC students 2011.
  - ❖ Organizer of MSE Challenge competition for Singapore JC students 2010.
  - ❖ Vice-President for NTU Astronomical Society 2009-2010.
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