

Curriculum Vitae

Thermal Engineering Laboratory
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Gunjan Auti

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Education and Training

Present	Project Researcher	The University of Tokyo, Japan
Sep 2023	Ph.D.	The University of Tokyo, Japan
Aug 2019	M. Tech + B. Tech	Indian Institute of Technology Bombay

Relevant Experience

Apr 2017 – Jul 2018	Project Engineer at Team Shunya, a student team representing India at the Solar Decathlon organized by US Dept. of Energy
May 2016 – Jul 2016	Visiting Researcher at the National Sun Yat-sen University, Taiwan

Academic and Research Experience

Aug 2019 – Aug 2020	Junior research fellow in the Department of Mechanical Engineering, Indian Institute of Technology Bombay
Jan 2019 – May 2019	Teaching Assistant for a graduate level course “Convective heat and mass transfer” at the Department of Mechanical Engineering, Indian Institute of Technology Bombay
Jul 2018 – Dec 2018	Teaching Assistant for a graduate level course “Two-phase flow and heat transfer” at the Department of Mechanical Engineering, Indian Institute of Technology Bombay

Honors and Awards

Sep 2020 – Aug 2023	Monbukagakusho Honors Scholarship, Japan Student Service Organization
Aug 2019	Dean’s award (URA 03) for master’s thesis, Indian Institute of Technology Bombay
Jun 2014	Gold medal, Orientation cum selection camp (OCSC), Indian National Chemistry Olympiad (INChO), Homi Bhabha Centre for Science Education

Journal Publications

- 1) **Auti, G.**, Paul, S., Hsu, W.-L., Chiashi, S., Maruyama S., Daiguji, H., Statistical modeling of equilibrium phase transition in confined fluids, *Physical Review Research*, Vol. 6, pp. 023333, 2024
- 2) **Auti, G.**, Kametani, Y., Kimura, H., Paul, S., Hsu, W.-L., Kusaka, S., Matsuda, R., Uemura, T., Chiashi, S., and Daiguji, H. Effect of pore size on heat release from CO₂ adsorption

in MIL-101, MOF-177, and UiO-66. *Journal of Material Chemistry A*, Vol. 11, pp. 20043-20054, 2023

- 3) Shamim, J. A.⁺, **Auti, G.**⁺, Kimura, H., Fei, S., Hsu, W.-L., Daiguji, H., and Majumdar, A. Concept of a hybrid compression-adsorption heat pump cycle. *Cell Reports Physical Science*, Vol. 3, 101131, 2022
(* - authors contributed equally)

Patents

- 1) Kumakura, E., Tanaka, M., Daiguji, H., Hsu, W. -L. Shamim, J., A., **Auti, G.**, Hu, M. -H., "Insulation structure to control heat loss in adsorption pressure vessel". Country of filing: Japan. Application Number: 2024-068645. Filing Date: 2024.04.19.
- 2) Kumakura, E., Tanaka, M., Daiguji, H., Hsu, W. -L. Shamim, J., A., **Auti, G.**, Hu, M. -H., "Batch system circuit with buffer tank". Country of filing: Japan. Application Number: 2024-068646. Filing Date: 2024.04.19.
- 3) Kumakura, E., Tanaka, M., Daiguji, H., Hsu, W. -L. Shamim, J., A., **Auti, G.**, Hu, M. -H., "Capacity control of batch and recirculation systems (control by changing pressure)". Country of filing: Japan. Application Number: 2024-068647. Filing Date: 2024.04.19.
- 4) Tanaka, M., Kumakura, E., Iyoshi, Y., Kondo, S., Yoshimi, A., Nakayama, K., Zuo Zhou, C., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171846. Filing Date: 2024.09.30.
- 5) Kondo, S., Kumakura, E., Iyoshi, Y., Tanaka, M., Yoshimi, A., Nakayama, K., Zuo Zhou, C., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., Hu, M. -H., Shamim, J., A., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171847. Filing Date: 2024.09.30
- 6) Nakayama, K., Kumakura, E., Iyoshi, Y., Kondo, S., Yoshimi, A., Tanaka, M., Zuo Zhou, C., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171848. Filing Date: 2024.09.30
- 7) Kumakura, E., Iyoshi, Y., Tanaka, M., Nakayama, K., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171850. Filing Date: 2024.09.30.
- 8) Kumakura, E., Iyoshi, Y., Tanaka, M., Nakayama, K., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171851. Filing Date: 2024.09.30.
- 9) Kumakura, E., Iyoshi, Y., Tanaka, M., Daiguji, H., Hsu, W. -L., **Auti, G.**, Paqualin, P., Boccamazzo, F., "Refrigeration Equipment". Country of filing: Japan. Application Number: 2024-171852. Filing Date: 2024.09.30.

Conferences

- 1) Hao, J., **Auti, G.**, Hsu, W. -L., and Daiguji, H. Effect of SO₃H groups on water adsorption of MIL-101: A molecular simulation study. 61st National Heat Transfer Symposium of Japan 2024, Kobe, JP

- 2) Fujino, E., Kametani, Y., **Auti, G.**, Shamim, J. A., Hsu, W. -L., Uemura, T., and Daiguji, H. Experimental investigation of heat generation from CO₂ sorption in porous liquid. *11th Asian Conference on Refrigeration and Air Conditioning 2024, Jeju, South Korea*
- 3) Hu, M. -H., Shamim, J. A., **Auti, G.**, Hsu, W. -L., Daiguji, H., Tanaka, M., Kumakura E., Yamada, T., and Oritani, Y. Experimental study of MOF-CO₂-based hybrid compression-adsorption heat pumps. *11th Asian Conference on Refrigeration and Air Conditioning 2024, Jeju, South Korea*
- 4) **Auti, G.**, Paul, S., Chiashi, S., and Daiguji, H., Thermodynamic modeling of equilibrium phase transitions in confined fluids. *American Physical Society March Meeting 2024, Minneapolis, MN*
- 5) Paul, S., Cheng, X., **Auti, G.**, Daiguji, H., Boiling Bifurcations and Hysteresis in Solid-state Nanopores. *American Physical Society March Meeting 2024, Minneapolis, MN*
- 6) Shamim, J. A., **Auti, G.**, Kimura, H., Boccamazzo, F., Hu, M. -H., Hsu, W. -L., Daiguji, H., and Majumdar, A. Concept of a novel hybrid compression–adsorption heat pump cycle *26th International Congress of Refrigeration 2023, Paris, FR*
- 7) **Auti, G.**, Boccamazzo, F., Hu, M. -H., Paul, S., Shamim, J. A., Hsu, W. -L., and Daiguji, H. Gas Adsorption of MOFs and their Application to HVAC Technology. *10th US-Japan Joint Seminar on Nanoscale Transport Phenomena, San Diego, CA*
- 8) **Auti, G.**, Hsu, W. -L., Daiguji, H., Statistical Model for Adsorption in Metal-organic Frameworks, *60th National Heat Transfer Symposium of Japan 2023, Fukuoka, JP*
- 9) Kimura, H., Hu, M. -H., **Auti, G.**, Boccamazzo, F., Shamim, J. A., Hsu, W. -L., and Daiguji, H. Concept of a hybrid compression–adsorption heat pump cycle. *60th National Heat Transfer Symposium of Japan 2023, Fukuoka, JP*
- 10) **Auti, G.**, Kimura, H., Shamim, J. A., Hsu W. -L., and Daiguji, H. Study on carbon dioxide adsorption properties of metal-organic frameworks (MOFs): Relationship between isosteric heat of adsorption and MOF structure. *American Chemical Society Spring Meeting 2023, Indianapolis, IN*
- 11) **Auti, G.**, Fei, S., Kimura, H., Hsu, W. -L. and Daiguji, H. Study on Carbon Dioxide Adsorption Properties of Metal-Organic Frameworks (MOFs): Relationship between isosteric heat of adsorption and MOF structure. *Japan Society of Mechanical Engineers: Thermal Engineering Conference 2022, Tokyo, JP*

Referees

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