

BRIEF BIODATA

JAY PATEL

Temp. Assistant Professor and PhD Scholar,
Department of Mechanical Engineering,
Faculty of Technology and Engineering,
The Maharaja Sayajirao University of Baroda,
Vadodara, Gujarat, India (390001)

Phone: +91-95376-99393
Email: jaypatel00115@gmail.com
Orchid Id: 0000-0002-6732-5198
Researcher ID: JCP-1576-2023
<https://sites.google.com/view/jaypatel00115>

Educational Details

Ph.D. (Cont.)	Mechanical Engineering	The Maharaja Sayajirao University of Baroda, Gujarat, India.
M.E. (2015)	Mechanical Engineering (Thermal Engineering)	Gujarat Technological University, Gujarat, India.
B.E. (2013)	Mechanical Engineering	Gujarat Technological University, Gujarat, India.

Research and Professional Experience

2022 - present	Temp. Assistant Professor, The Maharaja Sayajirao University of Baroda, India.
2016-2022	Assistant Professor, Sigma Institute of Engineering, Vadodara, India.
2015 - 2016	HVAC project Engineer, Airon Corporation, Vadodara, India.

Professional Interest

Research	Solar thermal application, Energy storage and its utilisation, Ray tracing simulation.
Teaching	Numerical method and computational programming, Computational technique and programming, solar thermal energy.

Accomplishment and Honors

- Received a prototype/product development grant of **Rs. 2, 25, 000/-** from SSIP 2.0 to develop a prototype of a solar Fresnel reflecting unit for various thermal applications in April 2024.

- Received a virtual grant of **\$10,000** from Solar and Storage Modelling Pty Ltd, trading as Solcast, located in Leichhardt, NSW 2040, Australia, in June 2021.
- Received a project development grant of **Rs. 12,000/-** with the title 'Energy Storage System for Cooling and Heating Applications' from the A. D. Patel Institute of Technology, Karamshad, Anand, Gujarat, India, in January 2015.
- Secured **1st rank in Gujarat** state for the exam of “Post-Graduation Common Entrance Test (PG CET), Gandhinagar” in 2015.

Reviewed books and manuscripts for the following publishers/conferences/journals

(a) Books/Books Chapter

- Challenges and Opportunities in Green Hydrogen Production, Springer.
- Reclaiming Eden - Responsible Living, Engineering and Architectures, Jenny Stanford.

(b) Journals

- Journal of Energy Storage, Elsevier.
- Journal of Thermal Analysis and Calorimetry, Springer Nature.
- Resent Patent on Mechanical Engineering, Bentham science publisher.

Publications:

A) Patent

- [A01] **Jay Patel**, Amit R. Patel, “Prediction of solar beam ray with use of ray tracing algorithm for heliostat type reflector” IPR 2022 (Waiting for approval and financial support)

B) Refereed Journal Papers (International)

- [B07] **Jay Patel**, Amit R. Patel, “Determining optimum grid numbers its methods and guidelines for a space and time dependent problem using ray tracing algorithm” Sustainable Energy Technologies and Assessments, **Elsevier, (Under Review/ I.F : 8.00)**
- [B06] **Jay Patel**, Amit R. Patel, “Numerical investigation on the effect of different types of configuration on the optical performance of solar flat plat reflecting system” Sustainable Energy Technologies and Assessment (<https://doi.org/10.1016/j.seta.2023.103586>), **Elsevier, 2024 (I.F : 8.00)**
- [B05] **Jay Patel**, Amit R. Patel, “Determination of optical and thermal performance of a large

size flat plate solar reflecting unit under azimuthal sun alignment” Journal of thermal analysis and calorimetry (<https://doi.org/10.1007/s10973-023-12282-2>), **Springer Nature, 2023 (I.F : 4.77)**

- [B04] Prajapati Jignesh, Shah Pujak, Sheikh Aeaj, Vishal Jha, **Jay I. Patel**, “Investigation on solar performance of the solar air heater by using artificial roughness – a review” International Journal of Scientific Research in Science, Engineering and Technology, Volume 4, Issue 5, ISSN: 2395-1990, 561-566, **2018**
- [B03] Shah Priyanshu, Solanki Abhishek, Thakkar Akshay, Thakkar Vijay, **Jay I. Patel**, “Development of multi- purpose commercial solar furnace - a review” International Journal of Scientific Research in Science, Engineering and Technology, Volume 4, Issue 5, ISSN: 2395-1990, 579-585, **2018**
- [B02] Ankit Panchal, Niket Dave, Bhavik Parmar, Jay H Patel, **Jay I. Patel**, “An assessment of phase change materials for domestic applications” International Journal of Advance Engineering and Research Development, ISSN: 2348-4470, **2017**
- [B01] Trupans Gandhi, Sagar Bhavsar, Jay Shah, Tejas Solanki, **Jay I. Patel**, “Pneumatic gear system” International Journal of Advance Engineering and Research Development, ISSN: 2348-4470, **2017**

C) Refereed Conference Papers (International)

- [C02] **Jay Patel**, Amit R. Patel, “Effect of octagonal shaped aperture area on optical performance of the simple flat plate solar reflecting system” 1st **IEEE** International conference on renewable energy and sustainable E-mobility (RESEM), Maulana Azad National Institute of Technology, Bhopal, **2023**
- [C01] **Jay Patel**, Amit R. Patel, “Effect of reflector height to base ratio on the optical performance of square shaped aperture area based flat plate solar reflecting system” Proceeding of International Conference on Recent Advances in (Applied) Sciences & Engineering (RAISE), MSU, Vadodara, **2023**

D) Refereed Conference Papers (National)

- [D01] **Jay Patel**, Vishal Singh, “PCM augmented composite wall for Base Transceiver station (BTS) for telecom tower” 17th ISME Conference on Advance mechanical Engineering, ISME17, ISME-T-084, **IIT Delhi, 2017**

E) Refereed Book Chapters

- [E02] **Jay Patel**, Amit R. Patel, “Recent advancements in large-scale solar flat plate reflecting systems: Their analysis with unique analytical technique, application, scaling up strategies, and economics as they are applied to underdeveloped countries” In: D. Ting & J. Stagner, (eds.), The costs of climate change mitigation innovation- A pragmatic

outlook, **Taylor & Francis/CRC publication, Dec-2023.**

- [E01] **Jay Patel**, Amit R. Patel, Tyagi H. “Advances in the solar thermal systems assisted production of green hydrogen: its analysis, scaling-up techniques, and economics aspects as applied to tropical regions” In: P. Singh, A. Agrawal, A. Thakur & R. K. Singh (eds.), Challenges and Opportunities in Green Hydrogen Production, **Springer, 2023 (Under review)**

F) Poster and paper presented (oral presentation)

- [F03] Dhruvil Joshi, **Jay Patel**, Narayan Jaiswal, Amit R. Patel, “Modelling of radiative heat transfer behaviour of a bakery oven under zone method” International Conference on Sustainable Energy and Environment, Maulanaazad National Institute of Technology, Bhopal, **2024** (abstract submitted)
- [F02] Mihir Bhojani, **Jay Patel**, Amit R. Patel, “Study on optical behaviour of a solar thermal down beam annular Fresnel type solar concentration reflective system” International Conference on Sustainable Energy and Environment, Maulanaazad National Institute of Technology, Bhopal, **2024** (abstract submitted)
- [F01] **Jay Patel**, Amit R. Patel, “Numerical investigation on the effect of different types of aperture area on the optical performance of solar flat plat reflecting system” International conference on environmental sustainability, Veermata Jijabai Technological Institute, Matunga, Mumbai, **2023** (abstract Submitted)