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Biography

2022-Present: Postdoctoral Research Fellow, RIES, Hokkaido University, Japan
2021: Postdoctoral visitor, Functional Materials Engineering (FME), IMO-IMOMEC, Hasselt University, Belgium
2016-2022: Assistant Professor, Department of Physica, Marwadi University, India
2018: Ph.D. (Physics), Charotar University of Science and Technology, Changa, Gujarat, India
2017: Department of Electronic Materials Engineering, Research School of Physics, ANU, Canbera, Australia
2012-2016: Ph.D. candidate, PDPIAS, Charotar University of Science and Technology, India
2011-2012: Assistant Professor, Department of Physics, Babaria Institute of Technology, India
2008-2011: Lecturer, Department of Physics, Government Polytechnic, India
2007: Master of Science (Physics), Saurashtra University, India
2005: Bachelor of Science (Physics), Saurashtra University, India

Original Papers (17)

[17] **Prashant R. Ghediya**, Joao Silvano, Pieter Verding, Rachith Shanivarasanthe Nithyananda Kumar, Guy Brammertz, Andreas Paulus, Ken Elen, Bart Ruttens, Sudhanshu Shukla, Jan D'Haen, An Hardy, Bart Vermang, Wim Deferme, "Ultrasonic spray coating of kesterite CZTS films from molecular inks", ***Appl. Phys. A*** 129, 404-415 (2023). (DOI: 10.1007/s00339-023-06692-0)

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[10] Tapas K. Chaudhuri, **Prashant R. Ghediya**, and Mitesh H. Patel, "Dark and photoconductivity of PbS/polystyrene nanocomposite films from 77-300 K", ***Surfaces and Interfaces*** 20 (2020) 100580.

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[1] **Prashant R. Ghediya** and Tapas K Chaudhuri, “Doctor-blade printing of Cu_2ZnSnS_4 films from microwave-processed ink”, ***Journal of Materials Science: Materials in Electronics*** 26 (2015) 19.

Book (1)

[1] Chapter 5: Microwave-processed copper zinc tin sulphide (CZTS) inks for coatings in solar cells, by **Prashant R. Ghediya** and Tapas K. Chaudhuri, pp 121 – 174 in J. Zhang and Y-G Jung (Eds.), Advanced Ceramic and Metallic Coating and Thin Film Materials for Energy and Environmental Applications (Springer, 2018)

Proceedings (4)

[4] **Prashant R. Ghediya** and Tapas K. Chaudhuri, “Effect of Microstructure on Electrical Properties of Cu_2ZnSnS_4 Films Deposited from Inks”, Springer Proceeding 215 (2019) 497, The XIX International Workshop on The Physics of Semiconductor Devices (IWPSD – 2017), New Delhi, India, 11-15 Dec, 2017.

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[1] **Prashant R. Ghediya** and Tapas K Chaudhuri, “Electrical properties of CZTS pellets made from microwave-processed powder”, AIP conference proceedings 1665 (2015) 120032, 59th DAE Solid State Physics Symposium, VIT University, Vellore, India,16-20 Dec, 2014.

Invited Talk (3)

[3] Versatility of molecular ink: ‘Deposition of new emerging materials to fabrication of solar cells’, XV Workshop on Physics of Condensed and Molecular Matter organized by Science Research Centre, Autonomous University of the State of Morelos, Mexico, June 21-23, 2021.

[2] Expert talk on webinar ‘Research: Importance & Outcomes’ organized by Applied Science and Humanities Department, Government Engineering College (GEC), Valsad, Gujarat, India, 26 May 2020.

[1] Sneha I. Solanki, I. B. Patel, J. D. Baraliya and **Prashant R. Ghediya**, “Preparation of Bi_2S_3 Nanoparticles by High-Energy Ball Milling Technique”, IOP Theory meets experiments: molecular nanoscience and applications, University College London, London, UK, 1-3 June, 2015.

Presentations (16)

[16] **Prashant Ghediya**, Yusaku Magari, Takashi Endo, Mamoru Furuta, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “Reliable Device Operation in High-Mobility Indium Oxide Thin Film Transistors”, 2024 年 第 71 回 応用物理学会春季学術講演会，東京都市大学 世田谷キャンパス,東京, 2024 年 3 月 22 日-25 日.

[15] **Prashant Ghediya**, Yusaku Magari, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “[S2-O202-04] Origin of the Instability of High-Mobility Polycrystalline In_2O_3:H-based Thin Film Transistors”, MRM2023, Kyoto, Japan, December 11-16, 2023. (oral)

[14] **Prashant Ghediya**, Yusaku Magari, Yuqiao Zhang, Yasutaka Matsuo, and Hiromichi Ohta, “Stability improvement of high-mobility In_2O_3:H TFTs by yttria passivation”, The Mini-Workshop on Functional Materials Science (Organizers’ meeting), Sapporo, Japan, December 1-2, 2023. (Poster)

[13] **Prashant Ghediya**, Yusaku Magari, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “Negative Bias Stability Improvement of In_2O_3:H TFTs by Yttria Passivation”, 第 84 回 応用物理学会秋季学術講演会「イオントロニクスにおける酸化物・カルコゲナイトの新機能」，熊本城ホールほか 3 会場, 2023 年 9 月 19 日-23 日

[12] **ゲディアプラシャント**，曲 勇作，楊 卉，張 雨橋，松尾保孝，太田裕道, “高背圧下 PLD により作製した高移動度 In_2O_3 薄膜を活性層とする TFT”, “全固体電気化学熱トランジスタ”, 第 70 回 応用物理学会 春季学術講演会，上智大学 四谷キャンパス＋オンライン, 2023 年 3 月 15 日-18 日

[11] **Prashant R. Ghediya**, Hui Yang, Takashi Fujimoto, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “Electric Field Thermopower Modulation Analyses of the Operation Mechanism of Amorphous $InGaO_3(ZnO)_m$ Thin Film Transistors”, 7th International Conference on Advances in Functional Materials (AFM 2023), Fukuoka, Japan, January 9-12, 2022 (Oral)

[10] **Prashant Ghediya**, Hui Yang, Takashi Fujimoto, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “Electric Field Thermopower Modulation Analyses of Effective Channel Thickness of Amorphous $InGaO_3(ZnO)_m$ Thin Film Transistors”, The 29th International Display Workshops (IDW ’22), Fukuoka, Japan, December 14-16, 2022 (poster). **Outstanding Poster Paper Award**

[9] **Prashant Ghediya**, Hui Yang, Takashi Fujimoto, Yuqiao Zhang, Yasutaka Matsuo, Yusaku Magari, and Hiromichi Ohta
, "Electric Field Thermopower Modulation Analyses of Operation Mechanism of $InGaO_3(ZnO)_m$ Thin Film Transistors", The 23rd RIES-Hokudai International Symposium 拓 [Taku], Sapporo, Japan, December 5-6, 2022.

[8] **Prashant R. Ghediya**, Hui Yang, Takashi Fujimoto, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, "Electric Field Thermopower Modulation Analyses of $InGaO_3(ZnO)_m$ (m = 1-30) Thin Film Transistors", 薄膜材料デバイス研究会 第 19 回研究集会 in 京都, 龍谷大学響都ホール（京都府京都市）, 2022 年 11 月 17 日-18 日.

[7] **Prashant R. Ghediya**, "Ultrasonic Spray Coating of CZTS and CCdTS films for tandem solar cells", The 12th European Kesterite+ Workshop organized by Technical University of Denmark (DTU), Copenhagen, Denmark, February 9-11, 2022

[6] **Prashant R. Ghediya**, "$CuCdS_2$ thin films for solar cells", Science Symposium – 2020 on Recent Trends in Science and Technology, Christ College, Rajkot, Gujarat, India, 19th January 2020. (BEST POSTER AWARD)

[5] **Prashant R. Ghediya** and Tapas K. Chaudhuri, "Cu_2ZnSnS_4 films deposited from nano-ink for solar photovoltaics", International Conference on Nanoscience and Technology (ICONSAT 2018), Indian Institute of Science Campus (IISc) Bengaluru, Karnataka, 21-23 March, 2018.

[4] **Prashant R. Ghediya**, "Copper zinc tin sulphide (CZTS) as a potential absorber for thin films solar cells", Engineer's Day Celebration – Research Work Presentation, 15 September, 2016, Marwadi University, Rajkot, Gujarat, India.

[3] **Prashant R. Ghediya** and Tapas K. Chaudhuri, "Electrical properties of CZTS films for solar cells",
National Conference on Recent Trend in Science of Materials (NCSM-2k15), The M S University of Baroda, Gujarat, 28-30 December, 2015.

[2] **Prashant R. Ghediya** and Tapas K. Chaudhuri, "Low-temperature transport properties of CZTS prepared from ink", Science Meet – 2014, Charusat, Changa, 09 November, 2014.

[1] **Prashant R. Ghediya**, Devendra Tiwari and Tapas K Chaudhuri, "Cu_2ZnSnS_4 films deposited from paste for low-cost solar cells", XXVII Gujarat Science Congress – 2013, Charusat, Changa, 24 February, 2013. (BEST POSTER AWARD)

Patent (1)

[1] Hiromichi Ohta, Yusaku Magari, **Prashant R. Ghediya**, “Thin Film Transistors”, JP 2023-185660, Submission date: 2023. 10. 30

Award (5)

[5] **The Charusat Research Paper Award 2023**, Title: Electrical properties of Ag/p-Cu2NiSnS4 thin film Schottky diode, Authors: **Prashant R. Ghediya***, Yash M. Palan, Drashti P. Bhangadiya, Ishrat I. Nakani, Tapas K. Chaudhuri, Kinjal Joshi, C. K. Sumesh, Jaymin Ray, Publication: Materials Today Communications 28 (2021) 102697

[4] **Prashant Ghediya**, **Outstanding Poster Paper Award**, The 29th International Display Workshops (IDW ’22), **Prashant Ghediya**, Hui Yang, Takashi Fujimoto, Yuqiao Zhang, Yasutaka Matsuo, Hiromichi Ohta, “Electric Field Thermopower Modulation Analyses of Effective Channel Thickness of Amorphous $InGaO_3(ZnO)_m$ Thin Film Transistors”, The 29th International Display Workshops (IDW ’22), Fukuoka, Japan, December 14-16, 2022 (poster). **Certificate**

[3] **<u>Prashant R. Ghediya</u>**, “Copper tin sulphide (CTS) absorber for photovoltaic applications”, National Science Day 2022, Marwadi University, Rajkot, India, 28 February 2022. **POSTER AWARD**

[2] **<u>Prashant R. Ghediya</u>**, “$CuCdS_2$ thin films for solar cells”, Science Symposium – 2020 on Recent Trends in Science and Technology, Christ College, Rajkot, Gujarat, India, 19th January 2020. **BEST POSTER AWARD**

[1] **<u>Prashant R. Ghediya</u>**, Devendra Tiwari and Tapas K Chaudhuri, “Cu_2ZnSnS_4 films deposited from paste for low-cost solar cells”, XXVII Gujarat Science Congress – 2013, Charusat, Changa, 24 February, 2013. **BEST POSTER AWARD**