

Manoj Sharma, Ph.D.		
Research Fellow , Department of Materials Science and Engineering, Monash University, Clayton Campus, Melbourne, Victoria 3800, Australia ARC Centre of Excellence in Exciton Science Researcher unique identifier (ORCID): 0000-0001-5215-9740	Address	Room 110 Desk 37, First Floor, 20 Research Way, Clayton VIC 3800
	Phone	0431918058
	Email	Manoj.sharma@monash.edu , manojnarad@gmail.com
Education		
<ul style="list-style-type: none"> Ph.D. degree from School of Physics and Materials Science at Thapar University, Patiala, India Supervisor: Prof. O.P Pandey Thesis: Capping of ZnS nanostructures; optical and morphological studies 	2007 - 2011	
<ul style="list-style-type: none"> M.Sc. in Applied Physics (Electronics) from Guru Nanak Dev University, Amritsar, India. 	2003 - 2005	
<ul style="list-style-type: none"> B.Sc. in Physics, Chemistry, and Mathematics from Punjabi University, Patiala, India 	2000 – 2003	
Professional experience		
<ul style="list-style-type: none"> May 2023-continuing: Research Fellow, Level B, Department of Materials Science and Engineering, ARC Centre of Excellence in Exciton Science, Monash University, Clayton Campus, Melbourne, Victoria 3800, Australia PI: Prof Jacek Jasieniak. Nature of Job: Lecturer for MTE5884/6884, Advanced Photovoltaics & Energy Storage Unit, 2023. Supervisor of graduate and undergraduate students. Leading a sub-team of the group with a focus on novel colloidal nanocrystal development, optical (steady-state and transient emission spectroscopies), and surface characterizations (XPS), optoelectronic applications. 		
<ul style="list-style-type: none"> May 2021-April 2023: Research Fellow, Department of Materials Science and Engineering, ARC Centre of Excellence in Exciton Science, Monash University, Clayton Campus, Melbourne, Victoria 3800, Australia PI: Prof Jacek Jasieniak. Nature of Job: Led a sub-team of the group with a focus on novel colloidal nanocrystals development, optical (steady-state and transient emission spectroscopies), and surface characterizations (XPS), optoelectronic applications, supervision of graduate and undergraduate students. 		
<ul style="list-style-type: none"> July 2020-March 2021: Senior Research Fellow, Luminous! Centre of Excellence for Semiconductor Lighting and Displays, School of Electrical & Electronics Engineering, Nanyang Technological University, Singapore Nature of Job: Spearheaded colloidal nanocrystal group with a focus on developing novel colloidal 2D quantum well materials and their assemblies, performing photophysical and surface characterizations (steady-state and transient abs. and emission spectroscopies, XPS, etc.), supervision of graduate and undergraduate students. 		
<ul style="list-style-type: none"> July 2017-June 2020: Research Fellow, Luminous! Centre of Excellence for Semiconductor Lighting and Displays, School of Electrical & Electronics Engineering, Nanyang Technological University, Singapore Nature of Job: Synthesis of colloidal nanocrystal with a focus on developing novel colloidal 2D and 0D materials, performing photophysical and surface characterizations (steady-state and transient abs. and emission spectroscopies, XPS, etc.), supervision of graduate and undergraduate students. 		
<ul style="list-style-type: none"> Jan 2020-March 2021: Program Manager, Luminous! Centre of Excellence for Semiconductor Lighting and Displays, School of Electrical & Electronics Engineering, Nanyang Technological University, Singapore. 		

Nature of Job: Centre management, writing, executing, and managing scientific projects from government funding agencies and industries.

Successfully managed and participated in writing and executing external funding support for LUMINOUS! from the National Research Foundation (NRF), Singapore, Ministry of Education (MOE), Singapore, LighLab, Sweden, etc.

- August 2016 – April 2017 Post-Doctoral Researcher, Department of Electrical & Electronics Engineering, UNAM, National Nanotechnology Research Centre, Bilkent University, Ankara, Turkey.

Nature of Job: Research and supervision.

- Feb 2015 – July 2016 **Visiting Scientist/Professor**, Department of Electrical & Electronics Engineering, TÜBİTAK - BİDEB – 2221, Bilkent University, Ankara, Turkey.

Host Professor: Prof. Hilmi Volkan Demir, Nature of Job: Research and supervision

- July 2011–Feb 2015, **Assistant Professor (tenured) and Department Incharge**, Department of Nanotechnology, Sri Guru Granth Sahib World University, Punjab, India

Nature of job: Teaching and research, the lead role in setting up a new department and related teaching and research laboratories, supervisor for M.S. and Ph.D. thesis for Nanotechnology, EEE, and Physics department students.

Selected Academic Awards and Fellowships

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|---|--------------|
| • Senior Research Fellowship awarded by the School of Electrical & Electronics Engineering
Nanyang Technological University, Singapore | 2020 |
| • Visiting Scientist/Professor Fellowship awarded by the Turkish Science and Technology Council (TUBITAK)
(TÜBİTAK - BİDEB– 2221) (12 months) | 2015-16 |
| • IASc-INSA-NASI Visiting Scientist, Indian Institute of Science, Bangalore
(Host: Prof. D. D. Sarma) (2 months) | 2014 |
| • All India Meritorious research fellowship (JRF and SRF) sponsored by University Grants Commission (UGC), New Delhi India. | 2008-10 |
| • Best Paper Award at EPIC-2018 International conference at NTU, Singapore. | 2018
2011 |
| • Best paper award at 22nd Annual General Meeting of Materials Research Society of India held during the period Feb.14-16, 2011 at Bhopal. | 2011 |
| • Travel Grant for International Scientific Conferences by DST and CSIR, Govt. of India | 2011 |
| • Got A grade both by Indian and foreign reviewers in Ph.D. thesis evaluation (from IIT Bombay, India, and Universidad Autónoma de Madrid, Spain) | 2011 |
| • Third Topper in M.Sc. Applied Physics (Electronics) from G.N D University, Amritsar, India. | 2005 |

Research support income:

- From 2017-to 2021, I have participated in securing over \$1.5 M (Singapore dollars) funding as a Senior Research Fellow and Program Manager at NTU, Singapore

Note: As research staff according to NTU rules cannot be on the Principal Investigators list. However, I have contributed immensely to writing, executing, and successfully completing these major multi-university grants. This can be confirmed by the Centre Director at NTU, Singapore who is listed in the reference list)

- Co-investigator for the Soft X-ray spectroscopy beamline at the Australian Synchrotron.

Title: Metal Halide Perovskites-based Soft X-ray Detectors

Date of Expt: 01/02/22 08:00 to 04/02/22 08:00

In-kind ANSTO Grant Value: \$ AUD 98,352.00 (based on the number of beamtime hours)

- Visiting Scientist/Professor Fellowships for Visiting Scientists and Scientists on Sabbatical Leave from TUBITAK (Central funding agency of Turkish Science and Technology)

Host: National Nanotechnology Research Centre (UNAM), Bilkent University, Ankara, Turkey.

Duration: 12 months (2015-16)

Title: Electroluminescent devices based on all inorganic nanomaterials

Budget: 60,000 TL as salary support plus in-kind support for logistics and travel

Mentoring and Supervision

I have had 1 Ph.D. and 10 Master thesis completions. Shortly after completion, these students further moved to renowned institutions and universities such as the National Institute of Materials Science, Japan, QUT, Brisbane, IIT Bombay, and UNY Polytechnic Institute, New York, USA. Apart from this as Program Manager and Senior Fellow, I was responsible for mentoring and supervising graduate students, exchange students, FYPs, and Engineers at NTU, Singapore. At Monash University, I am also involved in the co-supervision of graduate students and FYPs.

Publications Metrics and selected journal article list

- Total published Refereed journal papers: **54**

First author: 17, corresponding author: 12

In preparations (3)

- Published Conference Papers: 10
- **>70% of my refereed journal publications are in Q1 SJR journals**
- Published Books/monographs: 1
- h-index: 24 (Google Scholar)
- Total Citations: 1990 (Google Scholar)

Publication link:

(<https://scholar.google.com/citations?user=axr8VAQAAAAJ&hl=en>),

(www.linkedin.com/in/manoj-sharma-3212353b)

ORCID: <https://orcid.org/0000-0001-5215-9740>)

My research work spans interdisciplinary fields of colloidal nanocrystals, understanding light-matter interactions at the nanoscale using advanced optical characterization, and novel optoelectronic devices. My major publications are in leading materials and devices journals, including Advanced Materials (32.08); Advanced Functional Material (IF = 19.92); Nano letters (IF = 12.26); Light Science and Applications (IF = 20.26); Laser Photonics and Reviews (IF = 10.94), Matter (19.96), Small (15.15), and Chemistry of Materials (IF = 10.50), Advanced Optical Materials (IF=10.05), ACS Photonics (7.07).

Selected Journal Publications

1. C. Wang, S. K. Matta, C. K. Ng, C. Cao, **M Sharma***, A. S. R. Chesman, S. P. Russo, J. J. Jasieniak*, Direct synthesis of CsPbX₃ perovskite nanocrystal assemblies, **Nanoscale**, 2024,16, 614-623.

2. Junhong Yu, Sujuan Hu, Huayu Gao, Savas Delikanli, Baiquan Liu, Jacek J Jasieniak, **Manoj Sharma***, Hilmi Volkan Demir*, Observation of Phonon Cascades in Cu-Doped Colloidal Quantum Wells, **Nano Lett.** 2022, 22, 24, 10224–10231. (Co-**Corresponding author**)
3. **Manoj Sharma**, K. Gungor, A. Yeltik, M. Olutas, B. Guzelurk, Y. Kelestemur, T. Erdem, S. Delikanli, J. R. McBride, H. V. Demir, “*Near-Unity Emitting Copper-Doped Colloidal Semiconductor Quantum Wells for Luminescent Solar Concentrators*”, **Advanced Materials**, 29(30) 1700821, 2017
4. **Manoj Sharma**, Murat Olutas, Aydan Yeltik, Yusuf Kelestemur, Ashma Sharma, Savas Delikanli, Burak Guzelurk, Kivanc Gungor, James R McBride, Hilmi Volkan Demir, *Understanding the Journey of Dopant Copper Ions in Atomically Flat Colloidal Nanocrystals of CdSe Nanoplatelets Using Partial Cation Exchange Reactions*, **Chemistry of Materials**, 30 (10),3265–3275,2018
5. **Manoj Sharma**, Savas Delikanli, Hilmi Volkan Demir, Two-Dimensional CdSe-Based Nanoplatelets: Their Heterostructures, Doping, Photophysical Properties, and Applications, **Proceedings of the IEEE**,108 (5) 655-675, 2020.
6. Junhong Yu*, **Manoj Sharma***, Yimeng Wang, Savas Delikanli, Hamed Dehghanpour Baruj, Ashma Sharma, Hilmi Volkan Demir, Cuong Dang, Modulating Emission Properties in a Host-Guest Colloidal Quantum Well Superlattice, **Advanced Optical Materials**, 10 (4), 2022, 2101756 (***Equal first author**) (Cover art DOI: 10.1002/adom.202270014)
7. Katarzyna C. Nawrot*, **Manoj Sharma***, Bartlomiej Cichy, Ashma Sharma, Savas Delikanli, Marek Samoc, Hilmi Volkan Demir, Marcin Nyk, Spectrally Resolved Nonlinear Optical Properties of Doped Versus Undoped Quasi-2D Semiconductor Nanocrystals: Copper and Silver Doping Provokes Strong Nonlinearity in Colloidal CdSe Nanoplatelets, **ACS Photonics**, 2022, 9, 1, 256–267 (***Equal first author**)
8. Junhong Yu*, **Manoj Sharma***, et al. Low-Threshold Lasing from Copper-Doped CdSe Colloidal Quantum Wells, **Laser Photonics Reviews**. 2021, 15, 2100034 (***Equal first author**)
9. Baiquan Liu*, **Manoj Sharma***, et al. Managing the Emission from Ag-Doped Colloidal Quantum Wells: A Step to Unveil the Electroluminescence Effect of Noble-Metal Impurities in Nanocrystals, **Cell Reports Physical Science**, 3 (5), 2022 (***Equal first author**)
10. Junhong Yu*, **Manoj Sharma*** et al. Efficient generation of emissive many-body correlations in copper-doped colloidal quantum wells, **Cell Reports Physical Science** 3 (9), 101049, 2022 (***Equal first author**)
11. Arman Najafi*, **Manoj Sharma***, et al, Athos Petrou, Light-Induced Paramagnetism in Colloidal Ag+-Doped CdSe Nanoplatelets, **Journal of Physical Chemistry Letters**, 2021, 12, 11, 2892–2899. (***Equal first author**)
12. Baiquan Liu*, **Manoj Sharma***, et al., Hilmi Volkan Demir, Light-Emitting Diodes with Cu-Doped Colloidal Quantum Wells: From Ultrapure Green, Tunable Dual-Emission to White Light, **Small** 15(38),1901983, 2019 (*** Equal first author**)
13. Ashma Sharma*, **Manoj Sharma***, Kivanc Gungor, Murat Olutas, Didem Dede, Hilmi Volkan Demir, Near-Infrared-Emitting Five-Monolayer Thick Copper-Doped CdSe Nanoplatelets, **Advanced Optical Materials**, 7 (22), 1900831, 2019 (***Equal first author**)
14. Junhong Yu, **Manoj Sharma**, Ashma Sharma, Savas Delikanli, Hilmi Volkan Demir, Cuong Dang, All-optical control of exciton flow in a colloidal quantum well complex, **Light: Science & Applications**, 9, Article number: 27,2020
15. Baiquan Liu, Yemliha Altintas, Lin Wang, Sushant Shendre, **Manoj Sharma**, Handong Sun, Evren Mutlugun, Hilmi Volkan Demir, Light-Emitting Diodes: Record High External Quantum Efficiency of 19.2% Achieved in Light-Emitting

- Diodes of Colloidal Quantum Wells Enabled by Hot-Injection Shell Growth, **Advanced Materials**, 32(8), 1905824, 2020 (Front Cover art:10.1002/adma.202070054)
16. TA Nirmal Peiris, Hasitha C Weerasinghe, **Manoj Sharma**, et al., Jacek J Jasieniak, Non-Aqueous One-Pot SnO₂ Nanoparticle Inks and Their Use in Printable Perovskite Solar Cells, **Chemistry of Materials**, 2022, 34, 12, 5535–5545
 17. Y. Altinaz, B Liu, PL Hernandez-Martinez, N Gheshlaghi, F Shabani, **M Sharma**, et al., Spectrally Wide-range Tunable, Efficient and Bright Colloidal Light-Emitting Diodes of Quasi-2D Nanoplatelets Enabled by Engineered Alloyed Heterostructures, **Chemistry of Materials**, 32, 18, 7874–7883, 2020
 18. Junhong Yu, Songyan Hou, **Manoj Sharma**, et al, Strong plasmon-Wannier Mott exciton interaction with high aspect ratio colloidal quantum wells, **Matter**, 2(6), 1550-1563, 2020 (**Cell press**)
 19. S Delikanli, G Yu, A Yeltik, S Bose, T Erdem, J Yu, O Erdem, **M Sharma**, et al, Ultrathin Highly Luminescent Two-Monolayer Colloidal CdSe Nanoplatelets, **Advanced Functional Materials**, 29, 1901028, 2019
 20. Junhong Yu, **Manoj Sharma**, Savas Delikanli, Muhammad Danang Birowosuto, Hilmi Volkan Demir, Cuong Dang, Mutual Energy Transfer in a Binary Colloidal Quantum Well Complex, **Journal of Physical Chemistry Letters**, 10, 5193–5199, 2019
 21. F. Muckel S. Delikanli, P. L. Hernández-Martínez, T. Priesner, S. Lorenz, J. Ackermann, **M. Sharma**, H. V. Demir, G. Bacher, sp-d Exchange Interactions in Wave Function Engineered Colloidal CdSe/Mn: CdS Hetero-Nanoplatelets, **Nano Letters**, 18 (3), 2047–2053, 2018
 22. Hanchen Li, Wenping Yin, Chun Kiu Ng, Ruoxi Huang, Shengrong Du, **Manoj Sharma**, et al., Jacek J Jasieniak, Macroporous perovskite nanocrystal composites for ultrasensitive copper ion detection, **Nanoscale**, 2022, 14, 11953-11962
 23. Manpreet Kaur, Ashma Sharma, Murat Olutas, Onur Erdem, Akshay Kumar, **Manoj Sharma**, Hilmi Volkan Demir, Cd-free Cu-doped ZnInS/ZnS Core/Shell Nanocrystals: Controlled Synthesis And Photophysical Properties, **Nanoscale Research Letters**, 13, Article number: 182 (2018) (Corresponding author, Ph.D. thesis Supervisor)
 24. Amandeep Singh, Ramanjot Kaur, O.P. Pandey, Xueyong Wei, **Manoj Sharma***, *Synthesis of fluorescent core-shell nanomaterials and strategies to generate white light*, **Journal of Applied Physics**. 2015, 118 (4), 044305 (**Corresponding author**)
 25. **Manoj Sharma**, Tarun Jain, Sukhvir Singh, and O.P. Pandey, Photocatalytic degradation of organic dyes under UV-Visible light using capped ZnS nanoparticles, **Solar Energy**, 86, 626-633, 2012.
 26. **Manoj Sharma**, Sukhvir Singh, O.P. Pandey, Excitation induced tunable emission in biocompatible chitosan capped ZnS nanophosphors, **Journal of Applied Physics**, 107, 104319, 2010

Book/ Monograph

1. **Manoj Sharma**, O.P. Pandey, Title: Synthesis and biosensing applications of ZnS nanoparticles, Number: 43614, LAP LAMBERT Academic Publishing GmbH & Co. KG Heinrich-Böcking-Str. 6-8, 66121, Saarbrücken, Germany (**ISBN: 978-3-8484-0487-2**).

Selected Conferences/Invited talks

- Efficient Generation of Emissive Many-Body Correlations in Copper Doped Colloidal Quantum Wells for Low Threshold Lasing and Entangled Photon Pairs, ICEAN, Newcastle, Australia Oct. 2022 (**Invited talk**)
- Copper-Doped Colloidal Quantum Wells: synthesis, solar light harvesting, lasing, and mutual energy transfer, Proceedings of nanoGe Fall Meeting19 (NFM19), Berlin, Germany, 2019.
- Flat Nanocrystals, BIT's 4th Annual World Congress of Smart Materials -2018, Theme: Weaving an Avatar Dream Together, Time: March 6-8, 2018, Venue: Osaka, Japan (**Invited Speech**)
- Copper Doping in atomically Flat CdSe Colloidal Quantum Wells, Excitonics and Polaritonics International Conference (EPIC) organized, Nanyang Technological University, Singapore, from 5-7th Dec 2018 (**Best poster award**)
- Synthesis and Photo-physical Studies of Copper Doped Atomically Flat Nanoplatelets, XIV International Conference on Nanostructured Materials (NANO 2018), 24 - 29 June 2018, City University of Hong Kong. (Oral talk)
- Tunable optical properties from synthesized doped core-shell quantum dots for solid-state lighting and biosensing applications, Special symposium on "Advances in Physical Sciences" at the 101st Indian Science Congress held at University of Jammu, India 2014 (**Invited speaker**)
- Highly Luminescent ZnS: Mn/ZnS core shell nanoparticles for solid state lightning, Proceedings of the 13th IEEE International Conference on Nanotechnology Beijing, China, August 5-8, 2013 (978-1-4799-0675-8). (Oral talk)
- Tuning emission color in capped and doped ZnS nanocrystals by changing excitation conditions, International Conference on Luminescence and Its Applications (ICLA 2012), Feb 7-11, 2012. (ISBN No.8167178065). (Oral talk)
- Excitation modulated tunable emission in chitosan capped ZnS: Mn nanophosphors at different pH, 16th International conference on Luminescence, Ann Arbor University of Michigan, USA, 27 June-2 July 2011 (Oral talk).
- Sensing applications of capped ZnS nanomaterials, (2010) Annual General Meeting of Materials Research Society of India, 2011 (**Best poster**).
- Comparison of optical and morphological properties of uncapped and glutathione capped ZnS nanostructures, Proceedings of ICOP 2009-International Conference on Optics and Photonics CSIO, Chandigarh, India, 30 Oct.-1 Nov. 2009. (**Best poster**)

Selected Academic Achievements & Research Experience:

Doped Semiconductor colloidal quantum wells synthesis and photophysics (2015-2021)

I was the first to develop the experimental procedures for controlled doping in **atomically flat 2D semiconductor quantum wells**. (*Adv. Mater. 2017, Chem. Mat. 2018*) In atomically flat thin nanoplatelets having fixed vertical thicknesses of the order of ~ 1 nm, I for the first-time doped copper atoms with high-temperature nucleation doping and low-temperature partial cation exchange methods. I lead this work as **the first author** and designed the experiments and performed it to achieve these new material systems with superior optoelectronic properties. I conducted extensive optical (steady-state and time-resolved) and surface studies (**XPS**) for these new materials. Uniquely these doped nanoplatelets show near-unity efficient, red-infrared, highly Stokes-shifted photoluminescence emission with higher absorption cross-section and step-like absorption profiles. This project resulted in **12+ high-impact publications** in the last 4 years with **>400 citations** (*Adv. Mater. 2017, Chem. Mat. 2018, Adv. Opt. Mater. 2019, Small 2019, JPCL 2019 and 2020, etc.*) and got an excellent response from the scientific community which resulted in many contributed and invited speeches at important quantum dots conferences worldwide. This work has been positively followed by leading quantum dot groups in Europe, India, and China for exploring new emerging applications by utilizing controlled doping in colloidal synthesized atomically flat semiconductors.

Quantum devices (Lasers, LEDs, and Luminescent solar concentrators) (2017-2021)

The second important achievement of my research work lies in utilizing these newly added doped quantum well nanoplatelets for emerging optoelectronic applications. Generally, colloidal nanocrystals are used as optical gain materials for **lasing applications**. Recently, **stable biexciton emission and good lasing performance from these Cu-doped CdSe NPLs is achieved by us**. **This is a new way to achieve** sustained continuous-wave excitation-enabled biexciton emission from semiconductor NCs. Last year, we carefully studied these new materials for utilizing their dopant-host

interactions, which uniquely show sustained biexciton emission at room temperature. Furthermore, benefiting from the sustained Biexciton emission in Cu-doped CdSe NPLs, we used these materials for their lasing performance. (Laser Photonics and Reviews, 2021, Cell Reports Physical Science, 2022, Nano Letters 2022.)

Beyond lasing applications, my research work also focuses on quantum well-based light-emitting diodes, novel energy transfer processes in nanocrystals and their heterostructures, and luminescent solar concentrators. I also spearheaded the colloidal nanocrystal group for a Centre of Excellence at NTU, Singapore named LUMINOUS! (from 2019-20). This resulted in collaboration across different research groups in the US, Israel, Germany, Poland, and Singapore. 10 high-impact publications resulted through this platform where I am mostly the lead (or shared first) author and presented this work worldwide [e.g. WCSM-2018 (Invited speech, BIT Conf., Japan), NANO 2018 (Oral talk, Hongkong), 2019 NanoGe Fall Meeting, Germany].

Surface studies of colloidal quantum dots (Ph.D. work 2007-2011)

During my Ph.D. studies, I investigated the surface chemistry of Cd-free quantum dots in detail using organic and inorganic shells. Surface defects are well reported to play an important role in the excitonic and electronic properties of these semiconductor NCs. Detailed photophysics using *different optical characterization techniques was conducted*. Mn-doped CdZnS/ZnS, CuInS₂, ZnInS, Cu, ZnS: Mn/ ZnS, ZnS: Cu/ZnS core/shell fluorescent nanoparticles were synthesized and their surface and optical properties were experimentally characterized during the Ph.D. study. *This thesis achieves A grades both from national and foreign reviewers.*

Research Interests:

- Novel materials synthesis and characterizations
- Colloidal quantum dots, quantum wells, and perovskites
- Single photon emitters
- Lasers and quantum dot-based LEDs
- Light-matter interactions for semiconductor nanocrystals
- Greenhouse agriculture by quantum dots

Research capabilities:

Optical characterization and spectroscopy:

Time-resolved fluorescence spectroscopy
Transient absorption spectroscopy
UV-Vis-IR emission and absorption spectroscopy

Elemental and Structural Characterizations:

X-ray photoelectron spectroscopy
Inductively coupled plasma mass spectroscopy
X-ray diffraction

Teaching Experience

- Lecturer for MTE5884/6884 Advanced photovoltaics and energy storage course at **Faculty of Engineering, MSE, Monash University, Clayton, 2023*** (Feb-June 2023) (**Teaching evaluations by the faculty of engineering, at Monash University:** Students' satisfaction with my teaching (Raw score – this unit) 96/100 (**Very High**))
- During the Assistant Professor (tenured) position at Sri Guru Granth Sahib World University, India from 2011 to 2015 **Postgraduate, and Ph.D. thesis supervised:** 10 (M. Tech. Nanotechnology and M.Tech Electronics and Electrical Engineering), 1 (Ph.D.)

Subjects taught to undergraduate students Applied Physics I, Semiconductor nanomaterials, Spectroscopy-I, Luminescent Materials and Applications, Elements of Material Science & Properties of Nanomaterials, and Introduction to Nanotechnology.

Subjects taught to postgraduate students (Masters and Ph.D.): Characterization of Nanomaterials (Ph.D.), Luminescent Materials and Applications, Elements of Material Science & Properties of Nanomaterials.

Duties involved in the teaching of the above courses: As a unit coordinator I have prepared the unit outline and constructively align it with the course. I Provided feedback to students, and develop and maintain an appropriate online environment for teaching and assessment of the unit. Assist in administrative matters for unit operational matters such as timetabling matters. Update unit content from student feedback and communicate same to the student.

- **Laboratory Coordinator** for the following unit: Applied Physics, Materials Science, semiconductor Nanomaterials laboratory. Engaged research students as lab demonstrators, and overlooked the smooth operation of laboratory activities. Ensured proper health and safety guidelines are followed. Organized workshops and provided feedback on laboratory activities and evaluation of final assessment by organizing external evaluation of students.
- **Course coordinator** for graduate students enrolled in a two-year master's degree in nanotechnology (Master of Technology). Experienced in organizing and conducting lab exercises for Bachelor's and Master's students
- Teaching at School of Electrical & Electronics Engineering **Nanyang Technological University, Singapore** 2018-2020:

Postgraduate course: LED Lighting and Display Technologies, From Computational Thinking to programming, Laboratories for an Introduction to Engineering and Practices.

I am involved in these courses with a team of Professors and teaching staff. As Senior Research Fellow, I have participated in the delivery of lectures, laboratory sessions, examinations, and evaluations. Provided feedback to students, and develop and maintain an appropriate online environment for teaching and assessment of units.

- **During my stay at Bilkent University, Turkey, and NTU, Singapore (i.e. from 2015-to 2021)**, I am involved in the supervision of Master's, Ph.D., and young postdoc researchers and assisted School in teaching at NTU, Singapore.

Reviewer of Scientific Journals: American Chemical Society (ACS Applied Materials and Interfaces, ACS Sustainable Chemistry & Engineering, ACS Applied Nano Materials), etc.

Review Editor: Frontiers in Chemistry

Selected International Collaborators:

Prof. Demir (NTU, Singapore), Prof Bacher (Univ. of Duisenberg, Germany), Prof Efrat (Solid State Institute Technion, Israel), Prof. Nagao (NIMS, Japan), Prof Dang (NTU, Singapore), Prof. Sum (NTU, Singapore), Prof. McBride (Vanderbilt University, USA), Prof. Petrou (University of Buffalo, USA), and Prof Martin Dawson (University of Strathclyde, UK), Prof. Marek Samoc (Wroclaw University of Science and Technology, Poland).

Personal details:

Date of birth: 29th July 1983

Visa Status: Permanent resident of Australia (124 Distinguished Global talented independent visa) GTI

References:

1. Prof. Jacek J. Jasieniak
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Department of Materials Science & Engineering,
Monash University, Melbourne, Australia
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2. Prof. Hilmi Volkan Demir

Director, LUMINOUS! Centre of Excellence for Semiconductor Lighting and Displays

School of EEE, SPMS, and MSE,

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