Faculty Profile: For University Website

DEPARTMENT OF PHYSICS

<table>
<tr>
<td>Personal Information</td>
<td>Dr. Dali Ramu Burada
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Scopus Author ID: 57195421195
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https://scholar.google.co.in/citations?user=MokuY1IAAAAJ&hl=en</td>
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<td>Educational Qualification:</td>
<td colspan="2">• Ph. D. (2019), Indian Institute of Technology Delhi, India
• M. Tech. (2012), Indian Institute of Technology Delhi, India
• M.Sc. (2007), Andhra University, Visakhapatnam, Andhra Pradesh, India</td>
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<td>Courses Taught:</td>
<td colspan="2">Integrated UG &PG Programmes:
[B.Sc-M.Sc(Five Year), B.Tech-M.Tech.(Five Year) and M.Sc.(Two Year)]

• Physics –I
• Apparatus and Instruments-I : Optics
• Apparatus and Instruments-I : Optics
• Applied Physics: Introductory Physics
• Applied Physics: Physics-II
• Applied Physics : General Properties of Matter
• Optics
• Applied Physics Laboratory for All level courses</td>
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<td>Additional role/ responsibility:</td>
<td colspan="2">• Wraden UG Boys Hostel, Central University of Jharkhand (CUJ) [November 2024 -]</td>
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	• Member,Board of Studies(BoS),Deaprtment Physics,CUJ[October 2024 -] • Program Officer, National Service Scheme (NSS) [August 2024 -] • Member, Internal Quality Assurance Cell (IQAC)[September 2023 -]. • Member, National Higher Education Qualifications Frame work(NHEQF) [September 2023 -]. • Member, Institution Innovation Council of the University (IIC) [August 2023-]. • Member, Action Taken Report (ATR Committee) on Academic Audit 2022[May 2023 -].
Professional /Administrative Experience:	• Sr. Project Scientist (April 2022-December 2022) under JATC(DRDO-IITD initiative), and • Research Associate (August 2019-April 2022) under DST in Centre for Sensors, INstrumentation and Cyber-physical System Engineering (SeNSE)(Formerly IDDC) at Indian Institute of Technology Delhi, India.
Awards & Honours	• Research Associate (2019-2022), Department of Science and Technology, Govt. of India at Indian Institute of Technology Delhi, India. • Institute Research Fellowship (2012-2019) at Indian Institute of Technology Delhi, India. • Indo-German DST-DAAD Project-based Personnel Exchange Programme (PPEP) fellowship (2013-2015), at IIT Delhi, India - Technical University Ilmenau, Germany. • Ministry of Human Resources Development (MHRD) Assistantship(2010-2012), Govt. of India [National merit scholarship by qualifying Graduate Aptitude Test on Engineering(GATE)] at Indian Institute of Technology Delhi, India.
Research Area:	Optical Technology, Optical Engineering, Optical Metrology, Wavefront Sensing, Laser Systems and Applications, Optical Interferometry, Holography; Advanced Optical Design, Manufacturing and Metrology of Aspheres, Freeform Optics, Micro-optics and Diffractive Optics, Fiber Optics, X-ray Optics, Biomedical and Optical Instrumentation.
Research Guidance:	• M. Sc: 08 (Awarded)

Brief introduction:	Dr. Dali Ramu Burada is working as an Assistant Professor in the Department of Physics, Central University of Jharkhand (CUJ) since December 2022. Prior to joining CUJ, he had been a Senior Project Scientist under JATC (DRDO-IITD initiative) and Research Associate (DST) (August 2019 to Dec 2022) at Indian Institute of Technology Delhi (IITD) from where he received his Ph.D. (2019) and M.Tech.in Applied Optics (2012). He was a visiting researcher at Technical University of Ilmenau, Germany under Department Science and Technology (DST) India - German Academic Exchange Service Project based Personnel Exchange Programme (DAAD PPEP) during his Ph.D. (2013-2015). He is actively involved in teaching and Research & Development activities in the area of optical engineering and instrumentation. He has made immense contribution towards the development of a critical optical components i.e. asphere, freeform and diffractive optics, for various imaging and non-imaging applications. Particularly, he investigated a scanning Shack-Hartmann sensor (SHS) based metrology solution for in-situ measurement on the machining platforms, which is one of the major impediments in the development of freeform optics. He is also involved in R&D in collaboration with IIT Delhi and other national importance institutes. He has published ten research publications in peer reviewed international journals, twenty two conference proceedings in international conferences and one book chapter. Six post graduate students have been awarded dissertation under his guidance and some more student dissertations are ongoing.
Articles Published/ Accepted:	**Total Publications (28)** 1. Lalit M. Pant,**Dali R. Burada,** Mahendra Singh, Gufran S. Khan and ,Chandra Shakher "Investigations on measurement of freeform optical wavefront using holo-shear lens" Appl. Opt. 64(6), (2025). https://doi.org/10.1364/AO.549564 2. Kundan K. Prasad, Vipender S. Negi, Rohit Sharma, Vinod Mishra, Deblina Sabui, **Dali R. Burada** and Gufran S. Khan (2025) "Experimental investigations on the development of hybrid optical surfaces by using ultra-precision machining", Machining Science and Technology (Published online: 03 Feb 2025). https://doi.org/10.1080/10910344.2025.2456241 3. Lalit M. Pant,, Kamal K Pant, **Dali R. Burada,** Vinod Mishra, Gufran S. Khan,Chandra Shakher "Intrinsic surface feature-based techniques for correction of lateral misalignments during stitching process for freeform profile". J Opt (2022). https://doi.org/10.1007/s12596-022-00970-5 4. Vinod Mishra, **Dali R. Burada,** Kamal K. Pant, Vinod Karar, Alakesh Manna, Gufran S. Khan, "Investigations on flexible pad polishing for nanofinishing of freeform mold,'' Journal of Micromanufacturing 3(2),99-112(2020). https://doi.org/10.1177/2516598420939740 5. Vinod Mishra, Deblina Sabui, **Dali R. Burada,** Vinod karar, Sunil Jha & Gufran S. Khan "Experimental investigations on slow tool servo process

	parameters for freeform optics machining," Materials and Manufacturing Processes,35(7),797-810(2020). https://doi.org/10.1080/10426914.2020.1743849 6. **Dali R. Burada,** Kamal K. Pant; Vinod Mishra; Mohamed Bichra; Gufran S. Khan; Stefan Sinzinger; Chandra Shakher, "Development of a metrology technique suitable for in situ measurement and corrective manufacturing of freeform optics,"Advanced Optical Technologies, 8(3-4), pp. 203-215. (2019). https://doi.org/10.1515/aot-2018-0072 7. Vinod Mishra, **Dali R. Burada,** Kamal K. Pant, Sunil Jha and Gufran S. Khan "Form error compensation in the slow tool servo machining of freeform optics," The International Journal of Advanced Manufacturing Technology 105, 1623–1635 (2019). https://doi.org/10.1007/s00170-019-04359-w 8. Kamal K. Pant, **Dali R. Burada,** Mohamed Bichra, Amitava Ghosh, Gufran S. Khan, Stefan Sinzinger, and Chandra Shakher, "Weighted spline based integration for reconstruction of freeform wavefront," Appl. Opt. 57, 1100-1109 (2018). https://doi.org/10.1364/AO.57.001100 9. **Dali R. Burada**, Kamal K. Pant, Mohamed Bichra, Gufran S. Khan, Stefan Sinzinger, Chandra Shakher, "Experimental investigations on characterization of freeform wavefront using Shack–Hartmann sensor," OpEng. 56(8) 084107 (2017). https://doi.org/10.1117/1.OE.56.8.084107 10. Kamal K. Pant, **Dali R. Burada,** Mohamed Bichra, Mahendra P. Singh, Amitava Ghosh, Gufran S. Khan, Stefan Sinzinger, and Chandra Shakher, "Subaperture stitching for measurement of freeform wavefront," Appl.Opt.54(34),10022-10028(2015). https://doi.org/10.1364/AO.54.010022
Books and Book Chapters:	**Book Chapter** Vinod Mishra, **Dali R. Burada**, Kamal K. Pant, and Gufran S. Khan "Advances in ultra-precision manufacturing and metrology for freeform optics" Comprehensive Materials Processing (Second Edition), Vol.10, pp. 298-326, Elsevier(2024). https://doi.org/10.1016/B978-0-323-96020-5.00248-X
Seminar/ Workshop/ Conference Participation:	**International Conference/Workshop** 1. Avjit Prakash, Arpit Gupta, **Dali R. Burada,** and , Gufran S Khan, "Investigations on Performance Parameters of Phakic Intraocular Lens using a Wavefront Sensor," in Biophotonics Congress: Optics in the Life Sciences

	2023 (OMA, NTM, BODA, OMP, BRAIN), Technical Digest Series (Optica Publishing Group, 2023), paper DM2A.7. https://doi.org/10.1364/BODA.2023.DM2A.7 2. Rajbir Singh, Rohit Sharma, Vinod Mishra, Kundan. K. Prasad, **Dali R. Burada**, and Gufran S. Khan, "Investigations on Post Processing of a 3D-Printed Aspheric Lens using Ultra-Precision Diamond Turning," in Optica Design and Fabrication Congress 2023 (IODC, OFT), Technical Digest Series (Optica Publishing Group, 2023), paper OTu3B.5. 3. Kundan. K. Prasad, Rohit Sharma, Vinod Mishra, Rajbir Singh, **Dali R. Burada,** and Gufran S. Khan, "Development of Micro-structures on Curved Optical Surfaces using Ultra-Precision Machining," in Optica Design and Fabrication Congress 2023 (IODC, OFT), Technical Digest Series (Optica Publishing Group, 2023), paper OTu3B.3. 4. Vinod Mishra, Deblina Sabui, TP Yuvaraj, **Dali R .Burada**, Vinod Karar, Gufran S Khan "Fabrication and characterization of diffracto-freeform optics," Proc. SPIE 11487, Optical Manufacturing and Testing XIII,1148718(2020). https://doi.org/10.1117/12.2568518 5. Lalit Mohan Pant, K. K. Pant, **Dali R. Burada,** A. Ghosh, Gufran S. Khan, Chandra Shakher, "High resolution measurement of freeform wavefront by using self-imaging based sensor," Proc. SPIE 11056, Optical Measurement Systems for Industrial Inspection XI, 1105647 (2019). https://doi.org/10.1117/12.2525961 6. Kamal K Pant, **Dali R. Burada,** Vinod Mishra, L M Pant, Gufran S Khan, C Shakher , "Intrinsic surface feature-based subaperture stitching of freeform wavefront", Proc. SPIE 11057, Modeling Aspects in Optical Metrology VII,1105708(2019). https://doi.org/10.1117/12.2526037 7. Vinod Mishra, **Dali R. Burada,** Kamal K. Pant, Vinod Karar, Sunil Jha, Gufran S. Khan, "Freeform optics alignment strategy and its effect on development of precision freeform optics," Proc. SPIE 11056, Optical Measurement Systems for Industrial Inspection XI, 110564B (2019). https://doi.org/10.1117/12.2526017 8. Ashish Dwivedi, Kamal K. Pant, **Dali R. Burada,** Gufran S. Khan, Anurag Sharma, "Error estimation due to approximations in Shack-Hartmann sensor based measurement of high slope freeform wavefront,"Proc. SPIE 11057, Modeling Aspects in Optical Metrology VII, 110571J (2019). https://doi.org/10.1117/12.2526125 9. **Dali R. Burada,** Kamal K. Pant, Vinod Mishra, Ashish Dwivedi, Lalit M. Pant, Gufran S. Khan, and Chandra Shakher "Metrology techniques for ultra-precision diamond turned freeform optics", Freeform, OFT, OSA Technical

Digest,paperJW2A.4(2019). https://doi.org/10.1364/FREEFORM.2019.JW2A.4

10. **Dali R. Burada,** Kamal K. Pant, Vinod Mishra ,Mohamed, Bichra, Gufran S. Khan, Stefan Sinzinger, Chandra Shakher, "Development of an In-situ Metrology Technique for Freeform Optics," in Frontiers in Optics / Laser Science, OSA Technical Digest, paper JTu3A.11 (2018). https://doi.org/10.1364/FIO.2018.JTu3A.11
11. Kamal. K. Pant, **Dali. R. Burada,** A. Ghosh, G. S. Khan, and C. Shakher, "Improved Subaperture Stitching for the Measurement of Freeform Wavefront," in Frontiers in Optics / Laser Science, OSA Technical Digest, paper JW4A.9 (2018). https://doi.org/10.1364/FIO.2018.JW4A.9
12. Vinod Mishra, Dali **R. Burada**, Vinod Karar, Alakesh Manna, and Gufran S. Khan, "Development of Flexible Pad Polishing for Freeform Surface," in Frontiers in Optics / Laser Science, OSA Technical Digest, paper FM3D.4 (2018). https://doi.org/10.1364/FIO.2018.FM3D.4
13. **Dali R. Burada**, Kamal K. Pant; Vinod Mishra; Mohamed Bichra; Gufran S. Khan; Stefan Sinzinger; Chandra Shakher, "Development of metrology for freeform optics in reflection mode," Proc. SPIE 10329, Optical Measurement Systems for Industrial Inspection X, 103291K (2017). https://doi.org/10.1117/12.2270284
14. Vinod Mishra, Kamal K. Pant, **Dali R. Burada,** Vinod Karar, Gufran S. Khan, Sunil Jha, "Generation of freeform surface by using slow tool servo," In: Freeform Optics, Optical Society of America, pp. FTh3B-2(2017). https://doi.org/10.1364/FREEFORM.2017.FTh3B.2
15. Mohamed Bichra, Kamal K. Pant, **Dali R. Burada,** Nail Sabitov, Gufran S. Khan, Stefan Sinzinger, " Subaperture wavefront measurement using Talbot interferometry", DGaO-Proceedings*, Germany,* ISSN: 1614-8436 – urn:nbn:de:0287-2016-B(2016).
16. Gufran S. Khan, Kamal K. Pant, Mohamed Bichra, **Dali R. Burada**, Stefan Sinzinger, and Chandra Shakher "Non-Null Technique for Measurement of Freeform Wavefront using Stitching Approach," in Imaging and Applied Optics, OSA Technical Digest, paper FTh2B.3(2015). https://doi.org/10.1364/FREEFORM.2015.FTh2B.3
17. Mohamed Bichra, **Dali R. Burada,** Kamal K. Pant, Gufran S. Khan, Stefan Sinzinger, and Chandra Shakher, "Investigations on sub-aperture stitching approach for testing freeform optics," in Imaging and Applied Optics, OSA Technical Digest, paper JT5A.12 (2015). https://doi.org/10.1364/AOMS.2015.JT5A.12
18. Kamal K. Pant, **Dali R. Burada,** Amitava Ghosh, Gufran S. Khan, Chandra Shakher ''Investigations on Spline based Integration for Reconstruction of

	Freeform Wavefront'', ICAOP2017/OP93: XLI Conference of Optical Society of India, International Conference on Optics and Photonics, Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India (2017). 19. **Dali R. Burada,** Kamal K. Pant, Mohamed Bichra, Gufran S. Khan, Stefan Sinzinger, Chandra Shakher, ''Measurement of freeform optics in reflection mode by using a scanning wavefront Sensor'', ICLLT2016/076: XL Conference of Optical Society of India, International Conference on Optics and Photonics, Tezpur University(A Central University), Assam, India (2016). 20. **Dali R. Burada**, Kamal K. Pant, Mohamed Bichra, Gufran S. Khan, Stefan Sinzinger, Chandra Shakher, ''Shack-Hartmann Sensor Based Freeform Surface Metrology,'' ICOP2015: XXXIX Conference of Optical Society of India, International Conference on Optics and Photonics at University of Calcutta,Kokata,(2015). 21. Kamal K. Pant, **Dali R. Burada,** Mohamed Bichra, Gufran S. Khan, Stefan Sinzinger, Amitava Ghosh, Chandra Shakher, "Subaperture stitching for measurement of freeform wavefront using scanning Shack Hartman Sensor,''ICOP2015: XXXIX Conference of Optical Society of India, International Conference on Optics and Photonics at University of Calcutta,Kokata(2015). 22. Gufran S. Khan, Mohamed Bichra, **Dali R. Burada,** Kamal K. Pant, Stefan Sinzinger ''On the precise metrology of freeform optics: A comparative study of different methods'' ICOL2014:XXXVIII Conference of Optical Society of India, International Conference on Optics and Optoelectronics, IRDE Dehradun(2014).
Reviewer for various international journals	• Optics and Lasers in Engineering • Journal of Modern Optics • Optical Engineering
Any other information:	• Membership in Optica (Formerly OSA),USA
Updated as on	15th February 2025