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Notice for the PhD Viva Voce Examination

Ms Nikita Kush Durgi, Registration Number: 2190025, PhD Scholar at the Department of Chemistry, School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Friday, 30 January 2026 at 02.00 pm in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

Title of the Thesis	:	**Synthesis of π-Conjugated Organic Fluorophores and their Applications in Fluorescence Imaging**
Discipline	:	**Chemistry**
External Examiner - I	:	**Dr A S Achalkumar** Professor Department of Chemistry IIT Guwahati Guwahati - 781039 Assam
External Examiner - II	:	**Dr Joshy Joseph** Senior Principal Scientist and Professor, AcSIR Chemical Science and Technology Division CSIR-NIIST Thiruvananthapuram Industrial Estate PO Thiruvananthapuram Kerala - 695019
Supervisor	:	**Dr Prasad Pralhad Pujar** Associate Professor Department of Chemistry School of Sciences CHRIST (Deemed to be University) Bengaluru – 560029 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva – voce examination.

Place: Bengaluru
Date: 21 January 2026

Registrar (Academics)

Registrar (Academics)
CHRIST (Deemed to be University)
Bengaluru - 560029, INDIA

ABSTRACT

Fluorescence imaging is a powerful technique for visualizing chemical and biological species, where organic fluorophores play a crucial role due to their low toxicity, structural versatility, and biocompatibility. This thesis focuses on designing heterocyclic organic fluorophores with aggregation-induced emission (AIE) and excited-state intramolecular proton transfer (ESIPT) properties to overcome these limitations. Novel fluorophores based on dibenzofuran, pyrazole, carbazole, and indole scaffolds were synthesized and evaluated for fluorescence bioimaging applications. These molecules exhibited strong solid-state or aggregate-state emission, high fluorescence intensity in HeLa and MCF-7 cells, and large Stokes shifts. Additionally, a coumarin-based AIE fluorophore was developed for latent fingerprint visualization and anti-counterfeiting applications. Overall, this work demonstrates the successful development of non-toxic, highly emissive organic fluorophores with significant potential in fluorescence bioimaging, latent fingerprint detection, and security ink applications.

Keywords: *fluorescence imaging, organic fluorophores, latent fingerprint, anti- counterfeiting.*

Publications:

1. **Nikita Kush Durgi** and Prasad Pralhad Pujar. (2025). "Highly emissive dibenzofuran fluorophores with aggregation-induced emission for bioimaging in HeLa cell lines." RSC Adv., 2025, 15, 35253-35264. https://doi.org/10.1039/D5RA05626H
2. **Nikita Kush Durgi** and Prasad Pralhad Pujar. (2024). "Solid-state organic fluorophore for latent fingerprint detection and anti-counterfeiting applications," ChemistrySelect, vol. 9, no. 2, Jan. 2024. https://doi.org/10.1002/slct.202304066.

Patent Publication:

1. **Nikita Kush Durgi**, and Prasad Pralhad Pujar, "Design and Synthesis of Novel Organic Fluorophores based on Dibenzo[b,d]furan Scaffolds for Bioimaging and Anti-cancer Properties in HeLa Cells," published with application number: 202541015951A. Date of Publication: 07/03/2025.
2. **Nikita Kush Durgi**, and Prasad Pralhad Pujar, "Design and Synthesis of Novel Pyrazole-based molecules for anti-cancer and bioimaging properties in HeLa cell lines," published with application number: 202541020148A. Date of Publication: 21/03/2025.
3. **Nikita Kush Durgi**, and Prasad Pralhad Pujar, "Development of Novel Carbazole-based scaffolds for anti-cancer and bioimaging properties in HeLa cell lines," published with application number: 202541026979A. Date of Publication: 11/04/2025.