# Curriculum Vitae

**Prof. Gaddam Vijaya Prakash, FNASc, FRSC**
HAG Professor and Institute Chair Professor,
All-India Organizing Chairperson JAM-2025
Chairperson, GATE-2025 IIT Delhi
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## About Professor G.Vijaya Prakash

After joining IIT Delhi in 2005, Prof. G. Vijaya Prakash initiated the new research field, “Nanophotonics”: the study of nanostructures in photonic environment. His research interests span quantum functional materials, nonlinear optics and glass photonics. His extensive more than two decades long contributions is in the field of Inorganic-Organic hybrid perovskites, witnessed the commercial realization of next generation solar cells and LEDs. He is one of the few initiators of research on photonic crystals in India, specifically focusing on experimental realization of electron-photon strong coupling and nonlinear device methodologies. He is widely known for nonlinear rare-earth spectroscopy/imaging of specialty glasses and phosphors for optoelectronic devices. Some of his notable research works are in demonstrating optical gain from silicon nanocrystals, shortest confocal laser cavity for atom manipulation and strong coupling, low-cost SERS substrate commercialization. He has been recipient of research awards from UKIERI (UK), Royal Society (UK), INFM (UK) and IIT Delhi (‘High Impact Research Award’). He was instrumental in establishing DST-FIST Ultrafast Optics Lab at IITD. So far, he has guided/guiding 25 Ph.Ds and guided more than 40 post graduate students. He was keynote speaker, invited speaker, session chair for many notable international conferences. He holds research grants of more than Rs.65 Cr as PI/Co-PI from different funding agencies, since 2005. His scholarly work is evidenced by more than 240+ scientific journal publications with more than 5940 citations, h-index of 47 and i10-index of 134. His research has been recognized internationally as top 2% world scientists and top 10000 Asia scientists, since 2016.

He also held several administrative responsibilities such as Professor in-charge of academic facilities, and All-India Organising Chairperson for JAM-2025, GATE -2025 Chairperson and GTE-JAM Vice- Chairperson (2022-23, 2023-24) and professor-in-charge for Institute Timetable for more than 06 years.

Currently he is Fellow of National Academy of Sciences (FNASc) India, Fellow of Royal Society of Chemistry (FRSC) UK, and Highest Academic Grade (HAG) and Institute Chair Professor, group leader of Nanophotonics research lab and received Teaching Excellence Award for the year 2020-21. He is a long-term visiting faculty, since 2007, at University Southampton and University of Cambridge, UK.

**Research Specialization**: Nanophotonics, Quantum functional materials, Glass technology, photonics crystals/waveguides, Nonlinear optics, Rare-earth doped phosphors and glasses.

## Academic Positions:

| Year | Academic positions | Institute |
|---|---|---|
| 2023- to date | Highest Academic Grade (HAG) Professor | IIT Delhi, New Delhi |
| 2019- to date | Institute Chair professor | IIT Delhi, New Delhi |
| 2016/17 to date | Professor | IIT Delhi, New Delhi |
| 20011-16/17 | Associate Professor | IIT Delhi, New Delhi |
| 2004/05- 10 | Assistant Professor | IIT Delhi, New Delhi |
| 2019-20 | Visiting professor | University of Southampton, UK |
| 2007-15 | Visiting professor /researcher | University of Cambridge, UK |
| 2006 | Royal Society (UK) visitor | University of Southampton, UK |
| 2002-2004/05 | Research Fellow ( EPSRC and Royal Society fellow) | University of Cambridge and University of Southampton, UK |
| 1999/00-2002 | Post doctoral fellow , (INFM Fellowship) | University of Trento, UK |
| 1998-1999 | Post doctoral fellow,(DST/CSIR Fellowship) | University of Hyderabad,India |

**Sponsored Research Projects:** ( 2005- Till to date ; **~ Rs. 5.5** Cr. as PI and **Rs.60Cr.** as Co-PI and others )
*Completed/ongoing projects as PI (012):~ Rs.489 Lacs*
*and as CoPI and other (03) : ~5800 Lacs.*

**Research Guidance :**

- **Doctoral students : 15 ( completed)+ (05 external students) +8 (ongoing )**
  - **Masters/UG Degree students guidance** (**~40**)

**Academic/research Highlights :**

- Established “Nanophotonics” research activity
- Our nanophotonics research attracted “High-Impact Research” award (peer reviewed) from IITD- as PI along with other three faculty colleagues
- Top 5 most successful UK-India collaboration- Identified by British council (UKIERI) – selected for Case study by various UK organizations
- Active part in establishing a new lab *“ ultrafast Optics” ( supported by IITD and DST-FIST)*
- Active part in *DRDO-JATC*
- Some of the research articles attracted attention as *“Editor’s choice”, “Most downloaded paper”, “ Special edition”*
- Some of our research findings were most often used/ quoted in the recent perovskite PV development
- Best Institute level thesis award to one of my PhD student (2015)
- Several best oral presentation/poster awards for students ( International and National)

***Contributions of national/international importance***

- *“Teaching Excellence Award “* by IIT Delhi 2021
- Award of *“Institute Chair Professorship”* by IIT Delhi since 2019
- Established “Nanophotonics” research activity
- Our nanophotonics research attracted “High-Impact Research” award (peer reviewed) from IITD- as PI along with other three faculty colleagues
- UK-India Education and research Initiative (UKIERI) awards, 3 times, 2008-2016
- Top 5 most successful UK-India collaboration- Identified by British council (UKIERI) – selected for Case study by various UK organizations
- Active part in establishing a new lab *“ ultrafast Optics” ( supported by IITD and DST-FIST)*
- Some of the research articles attracted attention as *“Editor’s choice”, “Most downloaded paper”, “ Special edition”*
- Some of our research findings were most often used/ quoted in the recent perovskite PV development
- Best thesis award to one of my PhD students (2015)
- Best oral presentation/poster awards for students (International and National)
- Examiner to many doctoral degrees across India
- Member of INSPIRE (DST) research fellowship awards
- Royal Society UK, Visiting scientist Award 2006
- *Visiting Professor* to University of Southampton, UK since 2017

- *Visiting Senior Researcher* to University of Cambridge, UK since 2006

**Research Publications ( peer reviewed): > 240+ Conferences/workshops/talks >40**

**Book Chapters/Reviews: 6**

**A complete list of publications may be obtained from the following links**

http://nanophotonics.iitd.ac.in/

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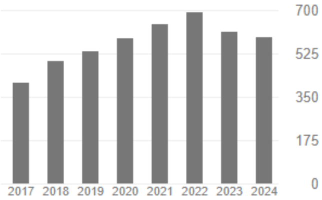
| | All | Since 2018 |
|---|---|---|
| Citations | 6547 | 3669 |
| h-index | 47 | 33 |
| I10-index | 137 | 108 |
| | | @Google Scholar |

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**Book Chapters/Reviews: 6**

1. G. Vijaya Prakash, S. Surendra Babu, A. A. Reddy, Optical Amplifiers from Rare-Earth Co-Doped Glass Waveguides, in "Advances in Optical amplifiers", Ed. P. Urquhart, Intech Publishers, Austria (2011) (ISBN: 978-953-307-1345-8)

2. G. Vijaya Prakash, "Thin-film organic photonics: molecular layer deposition and applications by T. Yoshimura" ( book review), Journal of Optics, 41 (2012) 184. link

3. G. Vijaya Prakash, "Fundamental Concepts of Semiconductors" Web course for National Programme on Technical Enhanced learning (NPTEL). http://nptel.iitm.ac.ink

4. G. Vijaya Prakash etal, "Glass Photonics " chapters: "Spectroscopy of Glasses" and "Techniques for Preparation of Glasses" World Scientifics', Singapore. ( ongoing)

5. " Asian Journal of Physics: A Special Issue Dedicated to Prof D Narayana Rao ( University of Hyderabad), Vol 30 , Isssue 6, 2021. Guest Edited By : Prof. G Vijaya Prakash (IIT Delhi), Prof. B Maruthi Manoj (IIT Kharagpur) & Prof. Shivakiran Bhaktha B N (IIT Kharagpur). Journal Link : AJP

6. "Recent advances in optics (RAO): Contribution of D Narayana Rao in optics and photonics research in India" Review Article published in Asian Journal of Physics, Vol. 30, No 6 (2021) 837-848 { weblink} and pdf

## Research publications in peer-reviewed (SCI) Journals

**Total research Publications ( peer reviewed): > 250+ Conferences/workshops/talks >40**

*Citations : ~6547; h-index : 47 i10index: 137*

[1]. " Structurally influenced optical nonlinearities and ultrafast dynamics in β-acroleyl- and β-dicyanobutadienyl-appended cobalt corroles " Inderpal Yadav, Jitendra Nath Acharyya, G. Vijaya Prakash and Muniappan Sankar, *Physical Chemistry Chemical Physics*, 26 (2024), 15125-15129 link

[2]. " Photonic Band Gap and Fractal Resonances in Aperiodic Cantor-like Self-Similar a:SiNx Photonic Structures" Albin Kuriakose, Jitendra Nath Acharyya, P. Srivastava, and G. Vijaya Prakash, *ACS applied optical materials*, 4(2024),670 link

[3]. " A review on photoluminescence phosphors for biomedical, temperature sensing, photovoltaic cell, anti-counterfeiting and white LED applications " Sumandeep Kaur, Harpreet Kaur, AS Rao, G Vijaya Prakash, *Physica B: Condensed Matter*, (2024) link

[4]. " Synthesis, Structural, Electrochemical, and DFT Studies of Highly Substituted Nonplanar Ni (II) Porphyrins and Their Intensity-Dependent Third-Order Nonlinear Optical Properties " Amir Sohel Bulbul, Albin Kuriakose, Komal, Reena, Jitendra Nath Acharyya, G Vijaya Prakash, Muniappan Sankar *Inorganic Chemistry*, (2024) link

[5]. " Hysteretic Piezochromism in a Lead Iodide-Based Two-Dimensional Inorganic–Organic Hybrid Perovskite " Paul Steeger, Mohammad Adnan, Thorsten Deilmann, Xiang Li, Susanne Müller, Katarzyna Skrzyńska, Michael Hanfland, Efim Kolesnikov, Jutta Kösters, Theresa Block, Robert Schmidt, Ilya Kupenko, Carmen Sanchez-Valle, G. Vijaya Prakash, Steffen Michaelis de Vasconcellos, Rudolf Bratschitsch, *Journal of the American Chemical Society (JACS)*, (2024) link

[6]. " Light Emitting Rare Earth Doped K3GdF6:Eu3+ for Spectral Mapping/Imaging Studies" Ib Singh Deo, Mohini Gupta, G. Vijaya Prakash*ACS Applied Optical Materials*, (2024) link

[7]. " Nanosecond laser induced periodic silicon microstructures for broadband antireflective applications " Albin Kuriakose , Pariksha Malik, Jitendra Nath Acharyya , Dinesh Kalyanasundaram, Pankaj Srivastava, G. Vijaya Prakash, *Optics & Laser Technology*, 179 (2024) 111337 link

[8]. " Spectrally resolved nonlinearities within a laser pulse in a single-scan and spectrometer-based nonlinear optical probing" Jitendra Nath Acharyya, Albin Kuriakose, and G. Vijaya Prakash, *Optics Letters*, 49(7),(2024)1721 link

[9]. " Syntheses, structural, photophysical and theoretical studies of heteroleptic cycloplatinated guanidinate(1−) complexes bearing acetylacetonate and picolinate ancillary ligand " Vasudha Thakur, Jisha Mary Thomas, Mohammad Adnan, Chinnappan Sivasankar, G. Vijaya Prakash and Natesan Thirupath, *RSC Advances* , 14,(2024)13291 link

[10]. " Up- and Downconversion Dual-Mode Excitation Spectral Studies of Rare Earth Doped KLaF4 Nano Emitters for Biophotonic Applications " Ib Singh Deo, Mohini Gupta, Gaddam Vijaya Prakash J. Phys. Chem. C, 8, (2023)

[11]. " Real-Time Monitoring of Progressive Crystal Phase Transformations and Associated Multi-Phase Optical Exciton Dynamics in Mixed (2D/3D) Inorganic–Organic Hybrid Semiconductors " PK Kanaujia, M Adnan, KM Dehury, M Akram, G Vijaya Prakash, Chemistry of Materials, 35 (2023) 7984-7994 link

[12]. " Germylenes Exhibiting Solid-State Emissions that Extend to NIR " Pratima Shukla, Jitendra Nath Acharyya, Pritam Mahawar, Hemant Kumar, Prakash Chandra Joshi, Vivek Kumar Singh, G Vijaya Prakash, Selvarajan Nagendran J Chemistry–A European Journal, 29 (2023), e202301486

[13]. Enhanced Femtosecond Nonlinearities and Multi-Photon Absorptions in Discrete Bands of Porphyrins " Mohd Shanu, Jitendra Nath Acharyya, M. Sankar, G. Vijaya Prakash, Inorganic Chemistry, Accepted In-Press (2023)

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[19]. " Tethering inorganic luminous upconverting nanoparticles with macromolecular chppendixains using silica functionalized with RAFT agent " T Joshi, M Gupta, S Mehta, N Singh, G. Vijaya Prakash, L Nebhani, Materials Today Communications, 33 (2022) 104806 link

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[24]. Tethering inorganic luminous upconverting nanoparticles with macromolecular chppendixains using silica functionalized with RAFT agent, T Joshi, M Gupta, S Mehta, N Singh, GV Prakash, L Nebhani, Materials Today Communications 33, (2022) 104806

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[33]. " Femtosecond optical nonlinearities and Ultrafast dynamics in Metal-dielectric photonic structure " Jitendra Nath Acharyya, G Vijaya Prakash, D Narayana Rao, Akhilesh Kumar Mishra, Workshop on Recent Advances in Photonics (WRAP), pp. 1-2. IEEE, 2022 link

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[35]. " Optical and thermal studies of Nd3+ doped inorganic liquid medium for scalable laser source " A. K.Varshney, Sanjeev Kumar, Ashwani Kumar, Gaurav Singhal, Mohini Gupta, and G. Vijaya Prakash, Optics & Laser Technology, 148 (2022) 107740

[36]. " Photoluminescence down-shifting studies of thermally stable Eu3+ ions doped borosilicate glasses for visible red photonic device applications " R. Bajaj, A. S. Rao, and G. Vijaya Prakash, Journal of Non-Crystalline Solids, 575 (2022) 121184

[37]. " Ultrafast Nonlinear Absorption and Pulse Propagation Dynamics in Metal-Dielectric Photonic Structure " Jitendra Nath Acharyya, A. K. Mishra, and G. Vijaya Prakash, Frontiers in Optics, Eds C. Mazzali, T. (T.-C.) Poon, R. Averitt, and R. Kaindl, Technical Digest Series (OSA, 2021), paper FTh4E.3. 2021

[38]. " Tunable characteristics of porous silicon optical microcavities by energetic N ion beams interactions " Verma, Chandra; Adnan, Mohammad; Srivastava, Pankaj; Kandasami, Asokan; Kanjilal, Dinakar; G. Vijaya Prakash, Journal of Physics D : Applied Physics, Sept(2021) link

[39]. " Structural Dependent (Non-) Linear Optical Excitons in Primary Cyclic Ammonium (C n H 2n-1 NH 2 ; n= 3 to 8) based Inorganic-Organic Hybrid Semiconductor Series " Dehury, Kshetra Mohan; Kanaujia, Pawan; Adnan, Mohammad; Kumar, Manish; Bhattacharya, Saswata; G Vijaya Prakash , Journal of Physical Chemistry C,125(12) (2021)6821

[40]. " Tuning the optical properties of porous Silicon-based microcavities by energetic oxygen ion beams for optoelectronic applications " Verma, Chandra; Kandasami, Asokan; Kanjilal, Dinakar; G. Vijaya Prakash, Materials Letters, 306 (1)(2021) 130914

[41]. "Effect of Zinc Fluoride addition on structure of barium Borate glasses for nonlinear optical applications " M.M.Neethish, Jitendra Nath Acharyya, G Vijaya Prakash, V.V.Ravi Kanth Kumar, Optical materials 121(2021) 111626

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[43]. " KLa(0.95-x)GdxF4:Eu3+ hexagonal phase nanoparticles as luminescent probe for in-vitro Huh-7 cancer cell imaging, " Mohini Gupta, Rajamani Nagarajan, CH. Ramamurthy, Perumal Vivekanandan, and G. Vijaya Prakash, Dalton Transactions, 50(2021)5197

[44]. " Study of surface and bulk recombination kinetics of 2D IO hybrid semiconductors under linear and nonlinear femtosecond transient absorption analysis, " Mohammad Adnan and G. Vijaya Prakash, Journal of Physical Chemistry C, 125(22) (2021)12166

[45]. " Linear and nonlinear excitation induced ultrafast absorption dynamics in laser ablated and chemically synthesized gold nanoparticle colloids, " Mani Priyadarshini, Mohammad Adnan and G. Vijaya Prakash, Optical Materials , 117 (2021)111206

[46]. " Photonic Cavity Mediated Tunable Ultrafast Absorption Dynamics in BaTiO3 Based One-Dimensional Photonic Crystal, " Jitendra Nath Acharyya, D. Narayana Rao, R. B. Gangineni and G. Vijaya Prakash, ACS Appl. Electronic Materials,3(4) (2021) 1904

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[52]. " Linear and nonlinear optical excitons in primary cyclic ammonium based inorganic–organic hybrid semiconductor series "Kshetra Mohan Dehury, and G Vijaya Prakash, Materials Today: Proceedings (2021)

[53]. "Recent advances in optics (RAO): Contribution of D Narayana Rao in optics and photonics research in India", Jitendra Nath Acharyya and G Vijaya Prakash, Asian Journal of Physics, 30 (2021) 837

[54]. " Photoluminescence down-shifting studies of thermally stable Eu3+ ions doped borosilicate glasses for visible red photonic device applications" Rajat Bajaj, AS Rao and G Vijaya Prakash, Journal of Non-Crystalline Solids, 575(2022) 121184

[55]. " Linear and nonlinear photoluminescence from thermally stable KYF4:Eu3+ cubic nanocrystals " Rajat Bajaj, AS Rao and G Vijaya Prakash, Journal of Alloys and Compounds 885(2021) 160893

[56]. " Thermo-physical modeling and experimental validation of core-shell nanoparticle fabrication of nickel-titanium (nitinol) alloy " Vinod Parmar, Sonu Singh, Sunil Kumar, G Vijaya Prakash, Dinesh Kalyanasundaram, Optics& Laser Technology , 138(2021) 106880

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