

## Curriculum Vitae

### **Prof. Gaddam Vijaya Prakash**

Institute Chair Professor,  
HAG Professor, Department of Physics  
Vice-Chairman, GATE-JAM IIT Delhi  
Nanophotonics group leader

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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. One of his extensive two decades long contribution is in the field of inorganic-organic hybrid perovskites, witnessed the commercial realization of next generation solar cells and LEDs. He is one of 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 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 5581 citations, h-index of 45 and i10-index of 122. His research has been recognized internationally as top 2% world scientists, top 10000 Asia scientists and top 150 in national, by various organizations, since 2016.

He also held several administrative responsibilities such as GATE-JAM vice-chairperson, Institute Time-table in-charge, Professor in-charge of academic facilities. Currently he holds Institute Chair Professorship, group leader of Nanophotonics research lab and received Teaching Excellence Award for the year 2020-21. He is a long-term visiting faculty 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
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 Co-PI 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 students (2015)
- Several best oral presentation/poster awards for students (International and National)

#### Contributions of national/international importance

- Institute Chair Professor Since 2019
- GATE-JAM Vice-chairperson
- Teaching excellence awards (2020-21)
- Institute Time-table in-charge (2014-17)
- Professor In-charge, LHC and academic facilities ( 2015-2019)
- 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**

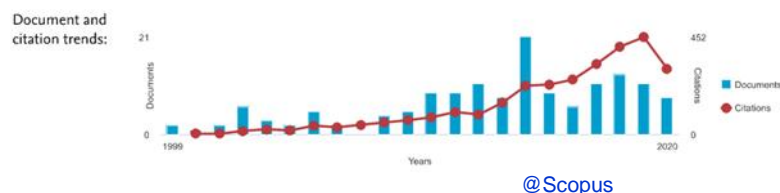
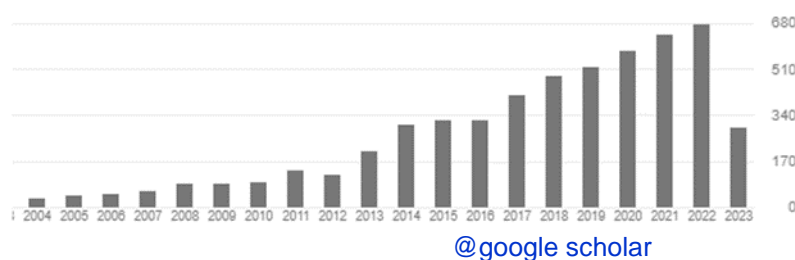
List of publications may be obtained from links

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

IITD profile <http://iitd.irins.org/profile/70731>

ORCID : <https://orcid.org/0000-0003-0450-3767>

Citations	5581
h-index	45
I10-index	122
D-index	41
<a href="#">@google scholar</a>	



**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.in>
4. G. Vijaya Prakash et al, "Glass Photonics " chapters: "Spectroscopy of Glasses" and "Techniques for Preparation of Glasses" World Scientific', Singapore. ( ongoing)
5. " Asian Journal of Physics: A Special Issue Dedicated to Prof D Narayana Rao ( University of Hyderabad), Vol 30 , Issue 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
7. " Our article "Linear and nonlinear optical probing of various excitons in 2D inorganic-organic hybrid structures" is part of Nature Scientific Reports collection on "Intense ultra-short pulses from femtosecond to attosecond" 12 April 2022.

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

**Total research Publications (peer reviewed): > 240+ Conferences/workshops/talks >40**  
*Citations: ~5581; h-index: 45; i10index: 122*

- [1]. " 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)
- [2]. " Down-conversion and up-conversion photoluminescence studies of Er<sup>3+</sup> doped calcium zinc borosilicate glass for optical fiber amplifiers " AVS Yeswanth, Ib Singh Deo, AS Rao, G. Vijaya Prakash Journal of Non-Crystalline Solids, 609 (2023) 122280 1
- [3]. " Push–pull octaphenylporphyrins with mixed substituents pattern: Synthesis, redox, ultrafast dynamics and nonlinear optical studies " Soni Kumari, Inderpal Yadav, Jitendra Nath Acharyya, Mohd Shanu, G. Vijaya Prakash, Muniappan Sankar Dyes and Pigments, 217 (2023) 111416 link
- [4]. " Photoluminescence and lifetime studies of C-dot decorated CdS/ZnFe<sub>2</sub>O<sub>4</sub> composite designed for photoelectrochemical applications " Archita Kar, Preeti Dagar, Sandeep Kumar, Ib Singh Deo, G Vijaya Prakash, Ashok Kumar Gangul, i Journal of Photochemistry and Photobiology A: Chemistry, (2023) 114612 link
- [5]. " NaBiF<sub>4</sub>:Yb<sup>3+</sup>,Tm<sup>3+</sup> submicron particles as luminescent probes for in vitro imaging of cells " Manisha Bungla, Shruti Chowdhari, Mohd Shanu, Pragya Pragya, Vivekanandan Perumal, G Vijaya Prakash, Ashok K Ganguli, Physical Chemistry Chemical Physics, (2023) 6131 link
- [6]. " Studies on Femtosecond Laser Textured Broadband Anti-reflective Hierarchical a-SiNx: H Thin Films for Photovoltaic Applications " Pariksha Malik, Jitendra Nath Acharyya, Mohd Shanu, Albin Kuriakose, Santanu Ghosh, Pankaj Srivastava, and G. Vijaya Prakash, ACS Applied Energy Materials, 6 (2023) 2039
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- [9]. " Saturation and reverse saturation of nonlinear absorption in laser ablated gold nanoparticles" M Priyadarshini, GV Prakash, Materials Today: Proceedings 80, (2023) 2416
- [10]. " Linear and nonlinear optical excitons in primary cyclic ammonium based inorganic–organic hybrid semiconductor series" KM Dehury, GV Prakash, Materials Today: Proceedings 80, (2023) 2464
- [11]. " Down-conversion and up-conversion photoluminescence studies of Er<sup>3+</sup> doped calcium zinc borosilicate glass for optical fiber amplifiers" AVS Yeswanth, IS Deo, AS Rao, G. Vijaya Prakash, Journal of Non-Crystalline Solids 609, (2023) 122280
- [12]. " Photoluminescence and lifetime studies of C-dot decorated CdS/ZnFe<sub>2</sub>O<sub>4</sub> composite designed for photoelectrochemical applications " Archita Kar, Preeti Dagar, Sandeep Kumar, Ib Singh Deo, G Vijaya Prakash, Ashok Kumar Ganguli, Journal of Photochemistry and Photobiology A: Chemistry, 439 (2023) 114612 link
- [13]. " NaBiF<sub>4</sub>:Yb<sup>3+</sup>,Tm<sup>3+</sup> submicron particles as luminescent probes for in vitro imaging of cells " Manisha Bungla, Shruti Chowdhari, Mohd Shanu, Pragya Pragya, Vivekanandan Perumal, G Vijaya Prakash, Ashok K Ganguli, Physical Chemistry Chemical Physics, (2023) 6131 link

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- [16]. " Highly efficient hexagonal-phase Nd<sup>3+</sup> doped KLaF<sub>4</sub> nanoparticles colloidal suspension for liquid lasers " M Gupta, IS Deo, R Nagarajan, G. Vijaya Prakash, *Optical Materials*, 133 (2022)113045 link
- [17]. " Ultrafast Dynamics and Strong Two-Photon Absorption Properties of Nonplanar  $\beta$ -Functionalized "Push–Pull" Copper Corroles with a Mixed Substituent Pattern " I Yadav, M Shanu, JN Acharyya, G. Vijaya Prakash, M Sankar, *Inorganic Chemistry*, 61(2022)19289 link
- [18]. " Synthesis, structural and optical properties of colloidal 2D organometal halide (C<sub>12</sub>H<sub>25</sub>-NH<sub>3</sub>) 2PbI<sub>4</sub> nanoparticles " KM Dehury, G. Vijaya Prakash, *IOP Conference Series: Materials Science and Engineering*, 1258(2022) 012011 link
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- Jitendra Nath Acharyya, Ib Singh Deo, G. Vijaya Prakash, *Optics & Laser Technology*, 156 (2022) 108515 [link](#)
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