

**First Name: Venu Gopal**

**Last Name :Achanta**

<b>Position and Affiliation</b>	<ul style="list-style-type: none"><li>• Director - CSIR-National Physical Laboratory, India</li><li>• Professor – (On lien from) Tata Institute of Fundamental Research, Mumbai, India</li></ul>	
<b>Email:</b>	<a href="mailto:achanta@tifr.res.in">achanta@tifr.res.in</a> <a href="mailto:achanta@nplindia.org">achanta@nplindia.org</a>	
<b>Phone (office)</b>	<b>+91-11-45609201</b>	

#### **National and International Roles**

- Elected Member of the International Committee on Weights and Measures (CIPM) – (2023 - ). 7<sup>th</sup> Indian to be elected and one after 23 years
- Elected member of the Executive Committee of Asia Pacific Metrology Program (APMP) – (2023- )
- Member of Empowered Board of LIGO-India – (2023- )
- President of Optical Society of India (2024 -) – plan to work on a unified basic curriculum in optics and photonics in India
- Vice President of Indian Laser Association (2023 - )
- Director - CSIR-Institute of Genomics and Integrative Biology, India (Additional Charge – April-December 2022)
- Executive Council Member of Bureau of Indian Standards (BIS), Quality Council of India (QCI), National Accreditation Board for Laboratories (NABL) – (2021- )
- Standing committee chair of BIS Nanotechnology section – (2021- )
- Chair of Appeals committee of NABL – (2022- )
- Editorial Board Member of Scientific Reports (Nature, 2015-)
- Associate Editor of Frontiers in Physics (Frontiers, 2017-)
- Associate Editor of Encyclopedia of Applied Physics (Wiley, 2017- 2022)
- Coordinator for India, JSPS Core2Core program on Advanced Nanophotonics – a consortium of 10 countries (2015-2021)
- Senate Member, IISER, Berhampur, India (2017- 2024)
- Senate Member of IIT, Delhi, India (2021- )
- Senate Member of JNU, New Delhi (2024- )
- Executive Council Member of Optical Society of India and IEEE Photonics, Mumbai Chapter
- Member of the BRICS Photonics Working Group that gave recommendations to Ministerial meeting, Moscow 2019
- Member of the program committee of the Asia Pacific Physics Conference – Condensed Matter Physics (APPC 2021-2023)
- Research Council member of CSIR-CEERI (2023- )

#### **Honour(s)/Award(s)/ Fellowship(s)/Membership**

1. Fellow of the Optica -- Optical Society of America
2. Fellow of the Indian National Science Academy
3. Honorary Fellow of Metrology Society of India
4. Japan Science and Technology (JST) Fellow, Japan (2003-2004)

- |  |
|--|
| 5. New Energy and Industrial Technology Organization (NEDO) Fellow, Japan (2000-2003). |
| 6. Senior Member, IEEE   |
| 7. Member of SPIE, OSI, ISSA, Indian Radio Science Academy                             |

#### **Educational Qualifications**

Degree	Subject	University/ Institute	Year
PhD	Electronics	Tokyo University	2006
PhD	Physics	TIFR, Mumbai	2000
MSc	Physics	University of Hyderabad	1994

#### **Academic/ Administrative / Research Experience**

Grade / Post	Institute	Duration		Research Field
		From	To	
NEDO Fellow	FESTA Laboratories, Tsukuba, Japan	June 2000	March 2003	Ultrafast all-optical switch
JST Fellow	Basic Research Labs, NEC, Tsukuba, Japan	April 2003	September 2004	Quantum logic gates
Fellow	TIFR, Mumbai	2004	2006	Ultrafast spectroscopy
Reader	TIFR, Mumbai	2006	2012	Plasmonics
Associate Professor	TIFR, Mumbai	2012	2018	Nanophotonics
Professor	TIFR, Mumbai	2018	Till date	Nanophotonics
Director	CSIR-NPL	2021	Till Date	
Director (Addl. Charge)	CSIR-IGIB	April 2022	December 2022	

#### **Expertise and Current Research Activities**

- |  |
|--|
| <ul style="list-style-type: none"> <li>High precision spectroscopy of single nanoparticle with fsec time resolution.</li> <li>Single-photon detection and characterization of single-photon detectors.</li> <li>High precision beam shift measurements.</li> <li>High-precision fabrication of nanophotonic structures including multilayer structures, and patterned surfaces.</li> <li>Light-matter interaction in nanophotonic structures embedded with single dipole emitters like quantum dot or nanodiamond for non-classical light generation.</li> <li>Development of single-photon detectors based on avalanche photodiodes and superconducting nanowires.</li> <li>Single-photon metrology.</li> </ul> |
|--|

- Design and development of nanophotonic structures for atom chips.

**No. of Journal Publications : 154 (listed at the end)**

**No. of Invited Talks : 200+**

### **Selected Publications**

1. "Reusable Biosensor Based on Differential Phase Detection at the Point of Darkness", S. Samdani, Abhinav Kala, R. Kaurav, S. Kaladharan, V. G. Achanta, *Adv. Photonics Res.* 2000147 (2021).
2. "Polarization-Independent Quasibound States in the Continuum", P Vaity, H Gupta, A Kala, S Dutta Gupta, YS Kivshar, VR Tuz, VG Achanta, *Advanced Photonics Research*, 2100144 (2021).
3. "Hyperbolic metamaterial with quantum dots for enhanced emission and collection efficiencies", A. Kala, F. A. Inam, S-A. Biehs, P. Vaity, V. G. Achanta, *Adv. Opt. Mater.* 2000368 (2020).
4. "Generation of non-classical states of photons from the metal-dielectric interface: a novel architecture for quantum information processing", K. Mehta, V. G. Achanta, S. Dasgupta, *Nanoscale* 12, 256 (2020).
5. "All-Dielectric Active Terahertz Photonics Driven by Bound States in the Continuum", S.Han, L. Cong, Y. K. Srivastava, B. Qiang, M. V. Rybin, A. Kumar, R. Jain, W. X. Lim, V.G.I Achanta, S. S. Prabhu, Q. J. Wang, Y.S. Kivshar, R. Singh, *Adv. Materials* 31, 1901921 (2019).
6. "Sensing at terahertz frequency domain using a sapphire whispering gallery mode resonator", C. Mathai, R. Jain, V. G. Achanta, S. P. Duttagupta, D. Ghindani, N. R. Joshi, R. Pinto, S. S. Prabhu, *Opt. Lett.* 21, 5383 (2018).
7. "Study of THz-Plasmon hybridization of a loop Yagi-Uda absorber", Arnab Pattanayak, Sandipta Roy, Goutam Rana, Siddhartha P. Duttagupta, Venu Gopal Achanta, and S. S. Prabhu *Sci. Rep.* 7, 16961(2017).
8. "Observation of giant Goos-Hanchen and angular shifts at designed interfaces", V. J. Yallapragada, A. P. Ravishankar, G. J. Mulay, G. S. Agarwal, and V. G. Achanta, *Sci. Rep.* 6, 19319 (2016).
9. "Plasmonic quasicrystals with broadband transmission enhancement", Sachin Kasture, Ajith P R, VJ Yallapragada, Raj Patil, Nikesh V. V., Gajendra Mulay, and Achanta Venu Gopal, *Sci. Rep.* 4, 5257 (2014).
10. "Optical reflectionless potentials for broadband, omnidirectional antireflection", L. V. Thekkakara, Achanta Venu Gopal, and S. Dutta Gupta, *Opt. Express* 22, 17382 (2014).
11. "Plasmon-mediated magneto-optical transparency", V. I. Belotelov, L. E. Kreilkamp, I. A. Akimov, A. N. Kalish, D. A. Bykov, S. Kasture, V. J. Yallapragada, Achanta Venu Gopal, A. M. Grishin, S. I. Khartsev, M. Nur-E-Alam, M. Vasiliev, L. L. Doskolovich, D. R. Yakovlev, K. Alameh, A. K. Zvezdin, and M. Bayer, *Nature Commun.* 4:2128 (2013).
12. "Semiconductor waveguide circuit for coupling an InGaAs quantum dot spin to a path encoded photon", I. J. Luxmoore, N. A. Wasley, A. J. Ramsay, A. C. T. Thijssen, R. Oulton, M. Hugues, S. Kasture, Achanta Venu Gopal, A. M. Fox, M. S. Skolnick, *Phys. Rev. Letts.* 110 037402 (2013).
13. "Enhanced magneto-optical effects in magnetoplasmonic crystals", V.I. Belotelov, I.A. Akimov, M. Pohl, V.A. Kotov, S. Kasture, A.S. Vengurlekar, Achanta Venu Gopal, D.R. Yakovlev, A.K. Zvezdin, M. Bayer, *Nature NanoTech.* 6, 370-376 (2011).
14. "Damping of exciton Rabi rotations by acoustic phonons in optically excited InGaAs/GaAs quantum dots", Andrew Ramsay, Achanta Venu Gopal, E. M. Gauger, A. Nazir, B. W. Lovett, A. M. Fox, M. S. Skolnick, *Phys. Rev. Lett.* 104 017402 (2010).
15. "Photoluminescence study of exciton-optical phonon scattering in bulk GaAs and GaAs quantum wells" Achanta Venu Gopal, Rajesh Kumar, A. S. Vengurlekar, A. Bosacchi, S. Franchi, L. N. Pfeiffer, and J. Shah, *J. Appl. Phys.* 87, 1858 (2000).
16. "Exciton Formation and Relaxation Dynamics in Quantum Wires", Rajesh Kumar, A. S. Vengurlekar, Achanta Venu Gopal, T. Mèlin, F. Laruelle, B. Etienne, and J. Shah, *Phys. Rev. Lett.* 81, 2578 (1998).

### **Manpower Training**

- 12 PhDs graduated (5 from TIFR, 1 from CSIR-NPL, 6 from other universities across India)

- 8 PhDs ongoing (3 from TIFR, 2 from NPL, 1 from IIT, Bombay, and 1 from Thapar University)
- 6 Postdocs guided so far – all working as faculty at various universities
- Taught courses at TIFR, Mumbai; TIFR, Hyderabad; CEBS, Mumbai; IISER, Berhampur
- Organized 3 international conferences in the area of nanophotonics
- Trained students from IITs, IISc, IISERs, Universities on nanofabrication, and spectroscopy

### **Administrative Responsibilities at TIFR**

1. Co-Chair of Engineering Services (Dean, Infra), TIFR, Mumbai (2020-2021)
2. Adjunct member of the Department of Chemical Sciences (2015-2021) and Dept. of High Energy Physics (2019-2021) in TIFR
3. Chair, Grievance Committee, TIFR (2017-2019)
4. Chair, Student Canteen Committee, TIFR (2018-2021)
5. Member of the TIFR Safety committee (2012-2021) and Stores and Procurement Committee (2014-2021)
6. Visiting Students Research Program (VSRP) co-coordinator 2006 and VSRP coordinator 2007
7. Course Coordinator for Subject Board Physics (2009-2013)
8. Member of core committee that evaluates the promotion of technical staff SO(B) and SO(C) (2012-2017)
9. Member of institute Transport committee (2014-2016)
10. Setting up and looking after the day to day operation of department cleanroom
11. Served as co-Chair and Chair of TIFR colony residents associations (COBRA and CIBRA, 2015-2017).
12. Served as Treasurer of TIFR Child Care Centre (2012-2015).

### **Full list of Publications in Journals**

1. "Controlling Bi/Fe ratio in bismuth iron garnet thin films deposited by confocal magnetron sputtering for enhanced Faraday rotation", Gajendra L Mulay, Shraddha Choudhary, Bhagyashree A Chalke, Rudheer D Bapat, Jayesh B Parmar, Manish B Ghag, Vilas J Mhatre, SS Prabhu, Ashwin A Tulapurkar, Venu Gopal Achanta, J. Magn. And Mag. Materials 610, 172542 (2024).
2. "PIQC based highly sensitive and reproducible novel SERS active substrate for biomolecule detection with high specificity", Sibashish Chakraborty, Rishabh Vij, Richa Goel, Bhanu Pratap Singh, Kunaal Dhingra, Venu Gopal Achanta, Satish Kumar Dubey, Sci. Reports 14, 29186 (2024).
3. "Evaluation of a-NbGe films as a candidate material for superconducting nanowire single-photon detector (SNSPD) applications", Mahesh Gaurav Yadav, Majid Yousuf, Manish M Sharma, Pratiksha Pratap, Abhishek Kumar, Abhilasha Saini, VPS Awana, VG Achanta, RP Aloysius, Supercon. Sci. Technol. 37, 115025 (2024).
4. "Revealing Enhanced Optoelectronic Performance of Sb<sub>2</sub>Se<sub>3</sub>-Based Self-Sustaining heterostructures with Bi<sub>2</sub>Se<sub>3</sub> and ZnSe: A Dual Polarity Photo Response", Kapil Kumar, Prince Sharma, Sahil Verma, Saurabh K Saini, Naveen Kumar Tailor, Sudhir Husale, Rajiv K Singh, Soumitra Satapathy, Venu Gopal Achanta, Mahesh Kumar, Adv. Function. Materials 34, 2405364 (2024).
5. "Reflectionless propagation of beams through a stratified medium", Sounak Sinha Biswas, Ghanasyam Remesh, Venu Gopal Achanta, Ayan Banerjee, Nirmalya Ghosh, Subhasish Dutta Gupta, Opt. Commun. 569, 130766 (2024).
6. "Emission engineering in monolithically integrated silicon nitride microring resonators", Kishor Kumar Mandal, Anuj Kumar Singh, Brijesh Kumar, Amit P Shah, Rishabh Vij, Amrita Majumder, Janhavi Jayawant Khunte, Venu Gopal Achanta, Anshuman Kumar, ACS Mater. Letts. 6, 1831 (2024).

7. "Tuning Ultrafast Carrier Dynamics and Broadband Photo-Response of High-Performance Sb<sub>2</sub>Se<sub>3</sub> Thin Film Photodetectors: A Substrate Dependent Study", K Kumar, S Verma, P Sharma, SK Saini, S Husale, VG Achanta, M Kumar, *ACS Photonics* 11 (3), 1031-1043 (2024).
8. "Single photon emission from in situ created nitrogen-vacancies in chemical vapor deposition grown single crystal diamond", VK Shukla, HK Poswal, A Kala, VG Achanta, A Majumder, K Saha, P Rai, *Physica Scripta* 99, 045106 (2024).
9. "Emission engineering in monolithically integrated silicon nitride microring resonators", K. K. Mandal, AK Singh, B. Kumar, AP Shah, R. Vij, A. Majumder, JJ Khunte, V. G. Achanta, A. Kumar, *ACS Materials Letters* 6, 1831-1840 (2024).
10. "Low-Cost Plasmonic Platform for Photon-Emission Engineering of Two-Dimensional Semiconductors", A. K. Singh, K.K. Mandal, Y. Gupta, Abhay A. V.S., L. Eswaramoorthy, B. Kumar, A. Kala, S. Dixit, V. G. Achanta, and A. Kumar, *Phys. Rev. Applied* 19, 044012 (2023).
11. "A photonic integrated chip platform for interlayer exciton valley routing", A. K. Singh, K. K. Mandal, Y. Gupta, A. Anand V. S., L. Eswaramoorthy, B. Kumar, A. Kala, S. Dixit, V. G. Achanta, A. Kumar, *J. Appl. Phys.* 133, 123104 (2023).
12. "Enhanced beam shifts mediated by Bound States in Continuum", S. S. Biswas, G. Remesh, V. G. Achanta, A. Banerjee, N. Ghosh, S. Dutta Gupta, *J. Optics* 25, 095401 (2023).
13. "Optimization of the superconducting properties of NbTiN thin films by variation of the N<sub>2</sub> partial pressure during sputter deposition", P Pratap, L Nanda, K Senapati, RP Aloysius, V Achanta, *Superconductor Science and Technology* 36 (8), 085017 (2023).
14. "Correlation of Light Polarization in the Magnetic Media with Non-Spherical Point-Like Inclusions", R. A. Niyazov, V. G. Achanta, V. I. Belotelov, *Magnetism* 3, 1-10 (2023).
15. "Polarization Eigenchannels in a Magnetic Uncorrelated Disordered Medium", R. A. Niyazov, M. A. Kozhaev, V. G. Achanta, V. I. Belotelov, *Phys. Metals and Metallography* 12, 447-450 (2022).
16. "Polarization-Independent Quasibound States in the Continuum", P. Vaity, H. Gupta, A. Kala, S. Dutta Gupta, Y.S. Kivshar, V.R. Tuz, V.G. Achanta, *Advanced Photonics Research* 3, 2100144 (2022).
17. "Dielectric encapsulations suitable for applications in quantum technologies", A. Kala, V. G. Achanta, *European Physical Journal Special Topics*, 231, 799 (2022).
18. "Reusable Biosensor Based on Differential Phase Detection at the Point of Darkness", S Samdani, A Kala, R Kaurav, S Kaladharan, VG Achanta, *Advanced Photonics Research* 2, 2000147 (2021).
19. "Polarization-Independent Quasibound States in the Continuum", P Vaity, H Gupta, A Kala, S Dutta Gupta, YS Kivshar, VR Tuz, VG Achanta, *Advanced Photonics Research*, 2100144 (2021).
20. "Broadband negative group velocity dispersion in all-dielectric metamaterial and its role in supercontinuum generation" Pravin Vaity, Rishav Sagar, JA Dharmadhikari, AK Dharmadhikari, S Dutta Gupta, Venu Gopal Achanta, *Optics Letters* 46 (2), 182-185 (2021).
21. "Exploring the route from leaky Berreman modes to bound states in continuum", G. Remesh, P. Vaity, V. G. Achanta, S. Dutta Gupta, *Opt. Commun.* 498, 127223 (2021).
22. "Effect of Co<sup>2+</sup> substitution on the structural, terahertz and magnetic characterization of NiZn ferrites", M Arya, MN Gandhi, SS Prabhu, VG Achanta, SP Duttagupta, *Journal of Physics D: Applied Physics* 54, 215002 (2021).
23. "Nanophotonic structures with optical surface modes for tunable spin current generation", PV Shilina, DO Ignatyeva, PO Kapralov, SK Sekatskii, M Nur-E-Alam, M Vasiliev, K Alameh, Venu Gopal Achanta, Y Song, SM Hamidi, AK Zvezdin, VI Belotelov, *Nanoscale* 13, 5791-5799 (2021).me
24. "Nickel-cobalt-zinc ferrite nanoparticles for radio-frequency/terahertz frequency-selective surface application", M Arya, MN Gandhi, SS Prabhu, VG Achanta, SP Duttagupta, *IET Nanodielectrics* 4, 98-106 (2021).
25. "Correlation of Nanomorphology with Structural and Spectroscopic Studies in Organic Solar Cells", Urvashi Bothra, Nakul Jain, Amelia CY Liu, Abhinav Kala, Wencho Huang, Xuechen Jiao, Eliot Gann, Venu Gopal Achanta, Christopher R McNeill, Dinesh Kabra, *ACS Appl. NanoMaterias* 3, 11080 (2020).

26. "Enhanced magneto-optical Faraday effect in two-dimensional magnetoplasmonic structures caused by orthogonal plasmonic oscillations", DM Krichevsky, AN Kalish, MA Kozhaev, DA Sylgacheva, AN Kuzmichev, SA Dagesyan, VG Achanta, E Popova, N Keller, VI Belotelov, Phys. Rev. B 102, 144408 (2020).
27. "Effect of calcination temperature on structural and terahertz characterization of M-type barium ferrite", Meenakshi Arya, Mayuri N Gandhi, SS Prabhu, Venu Gopal Achanta, Siddhartha P Duttagupta, AIP Adv. 10, 105220 (2020).
28. "Magnetoplasmonic structures with broken spatial symmetry for light control at normal incidence", OV Borovkova, H Hashim, DO Ignatyeva, MA Kozhaev, AN Kalish, SA Dagesyan, AN Shaposhnikov, VN Berzhansky, VG Achanta, LV Panina, AK Zvezdin, VI Belotelov, Phys. Rev. B 102, 081405 (2020).
29. "Performance enhancement due to a top dielectric coating on a metamaterial perfect absorber", J. K. Pradhan, Venu Gopal Achanta, A. K. Agarwal, S. A. Ramakrishna, Appl. Opt. 59, E118 (2020).
30. "Hyperbolic metamaterial with quantum dots for enhanced emission and collection efficiencies", A. Kala, F. A. Inam, S-A. Biehs, P. Vaity, Venu Gopal Achanta, Adv. Opt. Mater. 2000368 (2020).
31. "Hot carrier dynamics in a dispersionless plasmonic system", B. K. Nayak, S. S. Prabhu, and Venu Gopal Achanta J. Appl. Phys. 126, 213105 (2019).
32. "Surface waves at metal-dielectric interfaces: Material Science perspective", Venu Gopal Achanta, Rev. Phys. 5, 100041 (2020). **Invited Review**
33. "Whispering gallery modes at THz", S. S. Prabhu, Venu Gopal Achanta, Adv. Opt. Mater. 1900973 (2019). **Invited Review**
34. "Influence of the size of gold nanoparticles dispersed in glass matrix on optical properties", S. Singla, Venu Gopal Achanta, O. P. Pandey, G. Sharma, Ceramics Intl. 46, 9907 (2020).
35. "Single and multiband THz metamaterial polarizers", B. R. Sangala, A. Nagarajan, P. Deshmukh, H. Surdi, G. Rana, Venu Gopal Achanta, S. S. Prabhu, Pramana 94:2 (2020).
36. "Power enhancement of passive micro-direct methanol fuel cells with self-sulfonation of P(VDF-TrFE) copolymer during lamination on Nafion membrane", A. S. Rao, D. V. Manjunatha, A. Jayarama, Venu Gopal Achanta, S. P. Duttagupta, R. Pinto, Intl. J. Hydrogen Energy 44 30375 (2019).
37. "Generation of non-classical states of photons from a metal-dielectric interface: a novel architecture for quantum information processing", K. Mehta, Venu Gopal Achanta, S. Dasgupta, Nanoscale 12, 256 (2020).
38. "Magneto-optics for optical modulation", A. Kala, V. I. Belotelov, V. G. Achanta, Asian J. Phys. 29, 699-718 (2020). **Invited Review in honour of Prof. F. T. S. Yu**
39. "Effect of different stabilizers on dispersion of gold nanoparticles in bismuth borosilicate glass and their intensity dependent nonlinear behavior", S. Singla, Venu Gopal Achanta, O. P. Pandey, G. Sharma, Opt. Materials 96 109334 (2019).
40. "Reflection confocal nanoscopy using a super-oscillatory lens", A. Nagarajan, L. P. Stoevelaar, F. Silvestri, M. Siemons, Venu Gopal Achanta, S. M. B. Baumer, G. Gerini, Opt. Express 27, 20013 (2019).
41. "Resonant THz transmission through asymmetric aperture array with polarization controlled resonant peaks and Q-factors", A. Pattanayak, G. Rana, R. Jain, A. Bhattacharya, S. P. Duttagupta, P. S. Gandhi, Venu Gopal Achanta, S. S. Prabhu, J. Appl. Phys. 126, 223103 (2019).
42. "All-dielectric active Terahertz photonics driven by bound states in the continuum", S. Han, L. Cong, Y. K. Srivastava, B. Qiang, M. V. Rybin, A. Kumar, R. Jain, W. X. Lim, Venu Gopal Achanta, S. S. Prabhu, Q. J. Wang, Y. S. Kivshar, and R. Singh, Adv. Materials 31, 1901921 (2019).
43. "Effect of different stabilizers on dispersion of gold nanoparticles in bismuth borosilicate glass and their intensity dependent nonlinear behaviour", S. Singla, Venu Gopal Achanta, O. P. Pandey, G. Sharma, Opt. Mat. 96, 109334 (2019).
44. "All-dielectric active terahertz photonics driven by bound states in the continuum", S. Han, L. Cong, Y. K. Srivastava, B. Qiang, M. V. Rybin, A. Kumar, R. Jain, W. X. Lim, V. G. Achanta, S. S. Prabhu, Q. Wang, Y. S. Kivshar, R. Singh, Adv. Mat. 31, 1901921 (2019).

45. "Reflection confocal nanoscopy using a super-oscillatory lens", A. Nagarajan, L. P. Stoevelaar, F. Silvestri, M. Siemons, V. G. Achanta, M. B. Baumer, G. Gerini, Opt. Express 27, 20012 (2019).
46. "Photonic Crystal Based 2/3/6- Way Optical Splitter and Demultiplexer ", Richa Goyal, Banjo Kumar Nayak, A. Tulapurkar, V. G. Achanta, Frontiers in Physics 6, 152 (2019)
47. "Mueller matrix spectroscopy of Fano resonance in plasmonic oligomers", Shubham Chandel, Ankit K. Singh, Aman Agrawal, Aneeth K.A., Angad Gupta, V. G. Achanta, Nirmalya Ghosh, Opt. Commun. 432, 84 (2019).
48. Microscopic characterisation of photodetectors used in the hadron calorimeter of the Compact Muon Solenoid experiment, R. A. Shukla, V. G. Achanta, P. De Barbado, S. R. Dugad, A. Heering, S. K. Gupta, I. Mirza, S. S. Prabhu, and P. Rumerio, Rev. Sci. Instrum. 90, 023303 (2019).
49. Pattern and Peel method for fabricating mechanically tunable terahertz metasurface on an elastomeric substrate, S. C. Ambhire, S. Palkhivala, A. Agrawal, A. Gupta, G. Rana, R. Mehta, D. Ghindani, A. Bhattacharya, V. G. Achanta, and S. S. Prabhu, Opt. Mat. Express 8, 3382 (2018).
50. "Sensing at terahertz frequency domain using a sapphire whispering gallery mode resonator", Ciji Mathai, R. Jain, V. G. Achanta, S. P. Duttagupta, D. Ghindani, N. R. Joshi, R. Pinto, S. S. Prabhu, Opt. Lett. 21, 5383 (2018)
51. "Magnetoplasmonic quasicrystals: an approach for multiband magneto-optical response", A. Kalish, R. S. Komarov, M. A. Kozhaev, V. G. Achanta, S. A. Dagesyan, A. N. Shaposhnikov, A. R. Prokopov, V. N. Berzhansky, A. K. Zvezdin, V. I. Belotelov, Optica 5, 617 (2018)
52. "A Broadband Plasmonic Metasurface Superabsorber at Optical Frequencies: Analytical Design Framework and Demonstration", Arvind Nagarajan, Kumar Vivek, Manav Shah, Venu Gopal Achanta, and Giampiero Gerini, Adv. Opt. Mat. 1800253 (2018)
53. "Quadrupole-Quadrupole Interactions to Control Plasmon-Induced Transparency", Goutam Rana, Prathmesh Deshmukh, Shalom Palkhivala, Abhishek Gupta, S. P. Duttagupta, S. S. Prabhu, VenuGopal Achanta, and G. S. Agarwal, Phys. Rev. Appl. 9, 064015 (2018)
54. "Angle tunable trapped mode in a THz metamaterial", Bagvanth Reddy Sangala, Harshad Surdi, Prathmesh Deshmukh, Goutham Rana, Venu Gopal Achanta, S S Prabhu, Ind. J. Pure & Appl. Phys. 56, 327-330 (2018).
55. "Direct detection of spin Nernst effect in platinum" A Bose, S Bhuktare, H Singh, S Dutta, VG Achanta, AA Tulapurkar, Appl. Phys. Letts. 112, 162401 (2018). (Cover page)
56. "Magnetoplasmonic quasicrystals: an approach for multiband magneto-optical response", A. N. Kalish, R. S. Komarov, M. A. Kozhaev, Venu Gopal Achanta, S. A. Dagesyan, A. N. Shaposhnikov, A. R. Prokopov, V. N. Berzhansky, A. K. Zvezdin, V. I. Belotelov, Optica 5, 617 (2018).
57. "MPTMS self-assembled monolayer deposition for ultra-thin gold films for plasmonics", Pushkar K Gothe, Dhruv Gaur and Venu Gopal Achanta, J. Phys. Comm. 2, 035005 (2018).
58. "Control of Surface Plasmon-Polaritons in Magnetoelectric Heterostructures", Daria O. Ignatyeva, Andrey N. Kalish, Venu Gopal Achanta, Yujun Song, Vladimir I. Belotelov, Anatoly K. Zvezdin, J. Light wave Technol. 36, 2660-2666 (2018).
59. "Transverse spin with coupled plasmons", S Mukherjee, Venu Gopal Achanta, S. Dutta Gupta Pramana 89, 31 (2017).
60. "Study of THz-Plasmon hybridization of a loop Yagi-Uda absorber", Arnab Pattanayak, Sandipta Roy, Goutam Rana, Siddhartha P. Duttagupta, Venu Gopal Achanta, and S. S. Prabhu Sci. Rep. 7, 16961(2017).
61. "High refractive index gold nanoparticle doped Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub> glasses for THz frequencies", Shivani Singla, Venu Gopal Achanta, Nancy Mahendru, S. S. Prabhu, M. Falconieri, G. Sharma, Opt. Mat. 72, 91 (2017)
62. "High contrast switchability of VO<sub>2</sub> based metamaterial absorbers with ITO ground plane", Jitendra K. Pradhan, S. Anantha Ramakrishna, Bharathi Rajeswaran, Arun M. Umarji, Venu Gopal Achanta, Amit K. Agarwal, Amitava Ghosh, Opt. Express 25, 9116 (2017).
63. "Enhancement of electron hot spot relaxation in photoexcited plasmonic structures by thermal diffusion", F. Spitzer, B. A. Glavin, V. I. Belotelov, J. Vondran, I. A. Akimov, S. Kasture, V. G. Achanta, D. R. Yakovlev, and M. Bayer Phys. Rev. B **94**, 201118(R) (2016).

64. "Direct measurement of the Goos-Hanchen shift using a scanning quadrant detector and a polarization maintaining fiber", V. J. Yallapragada, G. Mulay, Ch. N. Rao, A. P. Ravishankar, Venu Gopal Achanta, *Rev. Sci. Instrum.* 87, 103109 (2016).
65. "Quasiperiodic air hole arrays for broadband and omnidirectional suppression of reflection", Anuradha Patra, Ajith P. Ravishankar, Arvind Nagarajan, Somendu Maurya, and Venu Gopal Achanta, *J. Appl. Phys.* 119, 113107 (2016).
66. "Multi-channel programmable power supply with temperature compensation for Silicon sensors", Raghunandan Shukla, Venu Gopal Achanta, Shashikant Dugad, James Freeman, Chandrashekhar Garde, Sunil Gupta, Prasad Khandekar, Akhil Kurup, Sarrah Lokhandwala, Sergey Los, S.S. Prabhu, and Pankaj Rakshe, *Rev. Sci. Instruments* 87, 015114 (2016).
67. "Observation of giant Goos-Hanchen and angular shifts at designed interfaces", V. J. Yallapragada, A. P. Ravishankar, G. J. Mulay, G. S. Agarwal, and V. G. Achanta, *Sci. Rep.* 6, 19319 (2016).
68. "Broadband linear and nonlinear optical response of plasmonic quasicrystals", A. P. Ravishankar, V. J. Yallapragada, S. Kasture, A. Nagarajan, and V. G. Achanta, *Opt. Comm.* 366, 57-60 (2016).
69. "Photonic crystals with plasmonic patterns: novel type of the heterostructures for enhanced magneto-optical activity", N. E. Khokhlov, A. R. Prokopov, A. N. Shaposhnikov, V. N. Berzhansky, M. A. Kozhaev, S. N. Andreev, Ajith P. Ravishankar, Venu Gopal Achanta, D. A. Bykov, A. K. Zvezdin, V. I. Belotelov, *J. Phys. D: Appl. Phys.* 48 095001 (2015).
70. "Plasmonic Quasicrystals", Venu Gopal Achanta, *Prog. Quant. Electron.* 39, 1-23 (2015). **Invited Review**
71. "Influence of lead and cadmium fluoride variation on white light emission characteristics in oxyfluoride glasses and glass ceramics", Gopi Sharma, Ruchika Bagga, Nancy Mahendru, Mauro Falconieri, Venu Gopal Achanta, Ashutosh Goel, Shaik Nayab Rasool, Navooru Vijaya, *Journal of Luminescence* 159, 38-46 (2015).
72. "Transformation of mode polarization in gyrotropic plasmonic waveguides", A.N. Kalish, D.O. Ignatyeva, V.I. Belotelov, L.E. Kreilkamp, I.A. Akimov, Achanta Venu Gopal, M. Bayer, A.P. Sukhorukov, *Laser Phys.* 24, 094006(2014).
73. "Optical properties of serrated GaN nanowires", Anuradha Patra, Zheng Ma, Latika Menon, and Achanta Venu Gopal, *Opt. Mat. Express.* 4, 1373 (2014).
74. "Plasmonic quasicrystals with broadband transmission enhancement", Sachin Kasture, Ajith P R, V J Yallapragada, Raj Patil, Nikesh V. V., Gajendra Mulay, and Achanta Venu Gopal, *Sci. Rep.* 4, 5257 (2014).
75. "Optical reflectionless potentials for broadband, omnidirectional antireflection", L. V. Thekkakara, Achanta Venu Gopal, and S. Dutta Gupta, *Opt. Express* 22, 17382 (2014).
76. "A micron resolution optical scanner for characterization of silicon detectors", R. A. Shukla, S. R. Dugad, C. S. Garde, Achanta Venu Gopal, S. K. Gupta, and S. S. Prabhu, *Rev. Sci. Instrum.* 85, 023301 (2014).
77. "Photonic-crystal-based polarization selector for planar architectures", Richa Goel, A. Tulapurkar, and Achanta Venu Gopal, *J. Nanophoton.* 8, 083891 (2014).
78. "Fabrication of large-area two-dimensional array of air holes with different hole shapes for optical and terahertz wavelength regions", Raj Patil, S. Lan, and Achanta Venu Gopal, *J. Nanophoton.* 8, 083896 (2014).
79. "Magnetophotonic intensity effects in hybrid metal-dielectric structures", V. I. Belotelov, L. E. Kreilkamp, A. N. Kalish, I. A. Akimov, D. A. Bykov, S. Kasture, V. J. Yallapragada, Achanta Venu Gopal, A. M. Grishin, S. I. Khartsev, M. Nur-E-Alam, M. Vasiliev, L. L. Doskolovich, D. R. Yakovlev, K. Alameh, A. K. Zvezdin, and M. Bayer, *Phys. Rev. B* 89, 045118 (2014).
80. "Nanostructured materials for photonics and plasmonics", Achanta Venu Gopal, *KIRAN Bull. Indian Laser Assoc.* 24(3), 30-33 (2013).

81. "Polarization dependent color switching by extra-ordinary transmission in H-slit plamsonic metasurfaces", P. Mandal, S. Anantha Ramakrishna, Raj Patil, and Achanta Venu Gopal, *J. Appl.Phys.* 114, 224303 (2013).
82. "Physical, optical and nonlinear properties of InS single crystal", Pallavi Kushwaha, Anuradha Patra, E. Anjali, Harshad Surdi, C. Gurada, S. Ramakrishnan, S. S. Prabhu, Achanta Venu Gopal, and A. Thamizhavel, *Opt. Materials* 36, 616-620 (2014).
83. "Luminescence study of mixed valence Eu-doped nanocrystalline glass-ceramics", R. Bagga, Venu Gopal Achanta, A. Goel, J. M. F. Ferreira, N. P. Singh, D. P. Singh, V. Contini, M. Falconieri, and G. Sharma, *Opt. Materials* 36, 198-206 (2013).
84. "Strong localization of terahertz wave and significant enhancement in electric field achieved in U-shaped resonators with a large aspect ratio", Rong-Rong Lin, Ye-Bin Xu, Hai-Ying Liu, Sheng Lan, and Achanta Venu Gopal, *Appl. Phys. Lett.* 103, 123505 (2013).
85. "Tuning of the transverse magneto-optical Kerr effect in magnetoplasmonic crystals", M. Pohl, L.E.Kreilkamp, V.I. Belotelov, I.A. Akimov, A.N. Kalish, N.E. Khokhlov, V.J. Yallapragada, Achanta Venu Gopal, M. Nur-E-Alam, M. Vasiliev, D.R. Yakovlev, K. Alameh, A.K. Zvezdin and M. Bayer, *New Journal of Physics* 15, 075024 (2013).
86. "Plasmon-mediated magneto-optical transparency", V. I. Belotelov, L. E. Kreilkamp, I. A. Akimov, A. N. Kalish, D. A. Bykov, S. Kasture, V. J. Yallapragada, Achanta Venu Gopal, A. M. Grishin, S. I. Khartsev, M. Nur-E-Alam, M. Vasiliev, L. L. Doskolovich, D. R. Yakovlev, K. Alameh, A. K. Zvezdin, and M. Bayer, *Nature Commun.* 4:2128 (2013).
87. "Nonlinearity induced critical coupling", K. Nireekshan Reddy, Achanta Venu Gopal, and S. Dutta Gupta, *Opt. lett.* 38, 2517 (2013).
88. "Strong coupling of in-plane propagating plasmon modes and their control", S. Kasture, P. Mandal, S. Dutta Gupta, Achanta Venu Gopal, *Opt. Express* 21, 13187-13192 (2013).
89. "Goos-Hänchen shifts in harmonic generation from metals", V. J. Yallapragada, Achanta Venu Gopal, G. S. Agarwal, *Opt. Express*, 21 Issue 9, pp.10878-10885 (2013).
90. "Semiconductor waveguide circuit for coupling an InGaAs quantum dot spin to a path encoded photon", I. J. Luxmoore, N. A. Wasley, A. J. Ramsay, A. C. T. Thijssen, R. Oulton, M. Hugues, S. Kasture, Achanta Venu Gopal, A. M. Fox, M. S. Skolnick, *Phys. Rev. Letts.* 110 037402 (2013).
91. "Efficient three-photon luminescence with strong polarization dependence from a scintillating silicate glass co-doped with Gd<sup>3+</sup> and Tb<sup>3+</sup>", G-C. Li, C-Y. Zhang, H-D. Deng, G-Y. Liu, S. Lan, Q. Qian, Z-M. Yang, and Achanta Venu Gopal, *Opt. Expr.* 21, 6020 (2013).
92. "Dy<sup>3+</sup>-doped nano-glass ceramics comprising NaAlSiO<sub>4</sub> and NaY<sub>9</sub>Si<sub>6</sub>O<sub>26</sub> nanocrystals for white light generation", R. Bagga, Achanta Venu Gopal, A. Goel, J. M. F. Ferreira, N. P. Singh, D. P. Singh, M. Falconieri, and G. Sharma, *Mat. Sci. Engn. B* 178, 218 (2013).
93. "Structural and optical investigation of rare earth doped oxyfluoride glasses", R. Bagga, M. Falconieri, Achanta Venu Gopal, J. M. F. Ferreira, A. Goel, N. P. Singh, N. Sharma, and G. Sharma, *Trans. Indi. Ceramic Soc.* 72:1, 18 (2013).
94. "Studying periodic nanostructures by probing the in-sample optical far-field using coherent phonons", C. Bruggemann, J. Jager, B. A. Galvin, V. I. Belotelov, I. A. Akimov, S. Kasture, Achanta Venu Gopal, A. S. Vengurlekar, D. R. Yakovlev, A. V. Akimov, and M. Bayer, *Appl. Phys. Letts.* 101, 243117 (2012).
95. "Selective appearance of several laser-induced periodic surface structure patterns on a metal surface using structural colors produced by femtosecond laser pulses", Jianwu Yao, Chengyun Zhang, Haiying Liu, Qiaofeng Dai, Lijun Wu, Sheng Lan, Achanta Venu Gopal, Vyacheslav A. Trofimov, Tatiana M. Lysak, *Appl. Surf. Sci.* 258, 7625– 7632 (2012).
96. "Coherent perfect absorption mediated anomalous refelction and refraction", S. Dutta-Gupta, R. Deshmukh, Achanta Venu Gopal, O. F. J. Martin, and S. Dutta Gupta, *Opt. Lett.* 37, 4452 (2012).
97. "Proximity error correction method for continuous moving stage electron beam writing", S. Kasture, Nikesh V.V., Gajendra Mulay, Achanta Venu Gopal, *J. Vac. Sci. Technol. B* 30, 050602 (2012).

98. "Plasmon assisted intense blue-green emission from ZnO/ZnS nanocrystallites", P. Mandal, Amandev Singh, Sachin Kasture, Achanta Venu Gopal, A. S. Vengurlekar, Opt. Mat. **33**, 1786 (2011).
99. "Modulation of a surface plasmon-polariton resonance by subterahertz diffracted coherent phonons", C. Bruggemann, A. V. Akimov, B. A. Glavin, V. I. Belotelov, I. A. Akimov, J. Jager, S. Kasture, Achanta Venu Gopal, A. S. Vengurlekar, D. R. Yakovlev, A. J. Kent, and M. Bayer, Phys. Rev. B **86**, 121401R (2012).
100. "Near Dispersion-less surface plasmon polariton resonances at a metal-dielectric interface with patterned dielectric on top", S. Kasture, P. Mandal, A. Singh, A. Ramsay, A. S. Vengurlekar, S. Dutta Gupta, Achanta Venu Gopal, Appl. Phys. Letts. **101**, 091602 (2012).
101. "Role of interfering optical fields in the trapping and melting of gold nanorods and related clusters", Hai-Dong Deng, Guang-Can Li, Qiao-Feng Dai, Min Ouyang, Sheng Lan, Achanta Venu Gopal, Vyacheslav A. Trofimov, and Tatiana M. Lysak, Opt. Express **20**, 10963 (2012).
102. "Femtosecond laser micromachining of ZnO nanorods for efficient two-photon-pumped random lasing and optical data storage", Zhi-Cheng Fu, Jun Dai, Tao Li, Hai-Ying Liu, Qiao-Feng Dai, Li-Jun Wu, Sheng Lan, Xia Wan, Shao-Long Tie, Venu Gopal Achanta, Vyacheslav A. Trofimov, and Tatiana M. Lysak, Appl. Phys. B **108**, 61 (2012).
103. "Assembling of three-dimensional crystals by controlling the effective Soret coefficient", Hai-Dong Deng, Ting Sun, Zhi-Cheng Fu, Hai-Ying Liu, Qiao-Feng Dai, Li-Jun Wu, Sheng Lan, and Achanta Venu Gopal Opt. Expr. **20**, 9616 (2011).
104. "Fabry-Perot plasmonic structures for nanophotonics", V. I. Belotelov, A. N. Kalish, A. K. Zvezdin, Venu Gopal Achanta, A. S. Vengurlekar, J. Op. Soc. Am B **29**, 294 (2012).
105. "Plasmonic crystals for ultrafast nanophotonics: optical switching of surface plasmon polaritons", M. Pohl, V. I. Belotelov, I. A. Akimov, A. S. Vengurlekar, A. V. Gopal, A. K. Zvezdin, D. R. Yakovlev, M. Bayer, Phys. Rev. B **85**, 081401(R) (2012).
106. "High spatial frequency periodic structures induced on metal surface by femtosecond laser pulses", J.-W. Yao, C.-Y. Zhang, H.-Y. Liu, Q-F. Dai, L.-J. Wu, S. Lan, Venu Gopal Achanta, V. A. Trofimov, T. M. Lysak, Opt. Expr. **20**, 905 (2012).
107. "Intensity magneto-optical effect in magnetoplasmonic crystals", V. I. Belotelov, I.A. Akimov, M. Pohl, A. N. Kalish, S. Kasture, A. S. Vengurlekar, Achanta Venu Gopal, V. A. Kotov, D. Yakovlev, A. K. Zvezdin, and M. Bayer, J. Phys: Conf. Series **303**, 012038 (2011).
108. "Effect of detuning on the phonon induced dephasing of optically driven InGaAs/GaAs quantum dots", A. J. Ramsay, T. M. Godden, S. J. Boyle, E. M. Gauger, A. Nazir, B. W. Lovett, Achanta Venu Gopal, A. M. Fox, and M. S. Skolnick, J. Appl. Phys. **109**, 102415 (2011).
109. "Enhanced magneto-optical effects in magnetoplasmonic crystals", V.I. Belotelov, I.A. Akimov, M. Pohl, V.A. Kotov, S. Kasture, A.S. Vengurlekar, Achanta Venu Gopal, D.R. Yakovlev, A.K. Zvezdin, M. Bayer, Nature NanoTech. **6**, 370-376 (2011).
110. "Transmission of terahertz wave through one-dimensional photonic crystals containing single and multiple metallic defects", Hai-Ying Liu,<sup>1</sup> Sen Liang,<sup>1</sup> Qiao-Feng Dai,<sup>1</sup> Li-Jun Wu,<sup>1</sup> Sheng Lan, Venu Gopal Achanta, Vyacheslav A. Trofimov, and Tatiana M. Lysak, J. Appl. Phys. **110**, 073101 (2011).
111. "Defect modification and energy extraction in a one-dimensional terahertz photonic crystal", S. Liang, H-Y Liu, Q-F Dai, L-J Wu, S. Lan, Achanta Venu Gopal, J. Appl. Phys. **109**, 024902 (2011).
112. "Modification of the spontaneous emission of quantum dots near the surface of a three-dimensional colloidal photonic crystal", Liu Zheng-Qi, Feng Tian-Hua, Dai Qiao-Feng, Wu Li-Jun, Lan Sheng, Ding Cai-Rong, Wang He-Zhou, and Venu Gopal Achanta, Chin. Phys. B **19**, 114210 (2010).
113. "Size dependent tuning of Mn<sup>2+</sup> d emission in Mn<sup>2+</sup>-doped CdS nanocrystals : Bulk vs Surface", Angshuman Nag, Roby Cherian, Priya Mahadevan, Achanta Venu Gopal, Abhijit Hazarika, Akshatha Mohan, A. S. Vengurlekar, and D. D. Sarma, J. Phys. Chem **C 114**, 18323 (2010).
114. "Optical trapping and manipulation of magnetic holes dispersed in a magnetic fluid", T. Sun, Z-C. Fu, W-R Zhao, H-D Deng, Q-F Dai, L-J Wu, S. Lan, and Achanta Venu Gopal, J. App. Phys. **107** 094306 (2010).

115. "Damping of exciton Rabi rotations by acoustic phonons in optically excited InGaAs/GaAs quantum dots", Andrew Ramsay, Achanta Venu Gopal, E. M. Gauger, A. Nazir, B. W. Lovett, A. M. Fox, M. S. Skolnick, Phys. Rev. Lett. **104** 017402 (2010).
116. "All optical switching mediated by magnetic nanoparticles", Q-F. Dai, H-D Deng, W-R Zhao, Liu, L-J Wu, S Lan, Achanta Venu Gopal, Opt. Letts. **35** 97 (2010).
117. "Effects of optical forces on the transmission of magnetic fluids investigated by Z-scan technique", Zi-Ming Meng, Hai-Ying Liu, Wei-Ren Zhao, Wei Zhang, Hai-Dong Deng, Qiao-Feng Dai, Li-Jun Wu, Sheng Lan, Achanta Venu Gopal, J. Appl. Phys. **106**, 044905 (2009).
118. In-situ characterization of three-dimensional optical matters by light diffraction", L-D. Jiang, Q-F. Dai, T-H Feng, J. Lin, L-J Wu, S. Lan, Achanta Venu Gopal, V. A. Trofimov, Chn. Phys. Lett. 26, 074201 (2009).
119. "Influence of trapping power and scanning speed on the quality of ordered structures formed in Z-scan-based optical trapping", Q-F. Dai, H-Y Liu, J. Liu, L-J Wu, Q. Guo, W. Hu, X-B yang, S-H Liu, S. Lan, Achanta Venu Gopal, V. A. Trofimov, Euro Phys. Letts. 85 18004 (2009).
120. "Manipulation of microparticles in colloidal liquids by z-scan based optical trapping", J. Liu, Q-F Dai, t-H Feng, H-Y Liu, L-J Wu, Q Guo, W Hu, S-H Liu, Sheng Lan, Achanta Venu Gopal, V. A. Trofimov, J. Appl. Phys. 104 114308 (2008).
121. "Dynamics of optical matter creation and annihilation in colloidal liquids controlled by laser trapping power", J. Liu, Q-F Dai, X-G Huang, L-J Wu, Q Guo, W Hu, X-B Yang, Sheng Lan, Achanta Venu Gopal, V. A. Trofimov Opt. Lett. 33 2617 (2008).
122. "All-optical switching using controlled formation of large volume three-dimensional optical matter", J. Liu, Q-F Dai, Z-M Meng, X-G Huang, L-J Wu, Q Guo, W Hu, Sheng Lan, Achanta Venu Gopal, V. A. Trofimov, Appl. Phys. Lett. 92, 233108 (2008).
123. "Enhancement of switching speed by laser-induced clustering of nanoparticles in magnetic fluids", H-D. Deng, J Liu, W-R Zhao, W. Zhang, X-S Lin, T. Sun, Q-F dai, L-J Wu, Sheng Lan, Achanta Venu Gopal, Appl. Phys. Lett. 92 233103 (2008).
124. "Self-induced transparency in colloidal liquids by Z-scan based optical trapping", Q-F. Dai, H-Y Liu, J Liu, L-J Wu, Q Guo, W Hu, X-B yang, S-H Liu, Sheng Lan, Achanta Venu Gopal, V. A. Trofimov, Appl. Phys. Lett. 92 153111 (2008).
125. "Self-Induced Anderson Localization and Optical Limiting in Photonic Crystal Coupled Cavity Waveguides with Kerr Nonlinearity", Hai-Ying Liu, Sheng Lan, Li-Jun Wu, Qi Guo, Wei Hu, and Song-Hao Li, Xu-Sheng Lin, Achanta Venu Gopal, Appl. Phys. Letts. **90**, 213507 (2007).
126. "Femtosecond pulse distortion at surface plasmon resonances in a plasmonic crystal", A. S. Vengurlekar, Achanta Venu Gopal, and T. Ishihara, Appl. Phys. Letts. **89**, 181927 (2006).
127. "All optical diodes based on photonic crystal molecules consisting of nonlinear defect pairs", H.Zhou, K-F Zhou, W. Hu, Q. Guo, S. Lan, X-S Lin, and Achanta Venu Gopal, J. Appl. Phys. **99**, 123111 (2006).
128. "High quality factor photonic crystal design to utilize semiconductor nonlinearities", Achanta Venu Gopal, Akihisa Tomita, Sheng Lan, Hirohito Yamada, and Jun Ushida, Jap. J. Appl. Phys. **45**, 1612 (2006).
129. "Dynamics of nonlinear photonic crystal atoms characterized by numerical simulations in a pump-probe scheme", Sheng Lan, Xiong-Wen Chen, Jing-Dong Chen, Xu-Sheng Lin, and Achanta Venu Gopal, Appl. Phys. Letts. **86**, 131112 (2005).
130. "Temporal behaviour of field in high quality factor photonic crystal microcavity structures", Achanta Venu Gopal, Akihisa Tomita, Hirohito Yamada, and Sheng Lan, Opt. Express **13**, pp.460-467 (2005).
131. "Ultrafast all-optical switching and modulation using intersubband transitions in coupled quantum well structures", H. Yoshida, T. Simoyama, Achanta Venu Gopal, J. Kasai, T. Mozume, and H. Ishikawa, IEICE Trans. Electron., **E87-C**, 1134-1141 (2004).
132. "Ultrafast response of photonic crystal atoms with Kerr nonlinearity to ultrashort optical pulses", Sheng Lan, Achanta Venu Gopal, Kyozo Kanamoto, and Hiroshi Ishikawa, Appl. Phys. Letts. **84**, 5124-5126 (2004).
133. "Magneto photoluminescence characterization of InGaAs/AlAsSb and InGaAs/InP quantum wells grown by (gas-source) molecular beam epitaxy", T. Mozume, J. Kasai, Achanta Venu Gopal, and N. Kotera, Physica **E21**, 703-707 (2004).
134. "Propagation effects in spectrally resolved transient four wave mixing measurements on

- excitons in GaAs multiple quantum wells", Bipul Pal, A. S. Vengurlekar, Achanta Venu Gopal, and S.S. Prabhu, *Physica* **E21**, 77-84 (2004).
135. "Ultralow intersubband absorption saturation intensity at communication wavelength achieved in novel strain compensated InGaAs/AlAs/AlAsSb quantum wells grown by molecular beam epitaxy", T. Mozume, J. Kasai, N. Georgiev, T. Simoyama, Achanta Venu Gopal, and H. Yoshida, *Jpn. J. Appl. Phys.* **42**, 5500-5507 (2003).
136. "Intersubband absorption saturation in InGaAs/AlAs/AlAsSb coupled quantum wells for all-optic switching", Achanta Venu Gopal, T. Simoyama, H. Yoshida, J. Kasai, T. Mozume, and H. Ishikawa, *IEEE J. Quant. Electron.*, **39**, 1356-1361 (2003).
137. "InGaAs/AlAs/AlAsSb coupled quantum well intersubband transition all-optical switch with low switching energy for OTDM systems", T. Simoyama, H. Yoshida, J. Kasai, T. Mozume, Achanta Venu Gopal, and H. Ishikawa, *IEEE Photon. Technol. Letts.* **15**, 1363-1365 (2003).
138. "Room temperature dephasing time of intersubband transition in heavily doped InGaAs/AlAs/AlAsSb coupled quantum wells", Achanta Venu Gopal, H. Yoshida, T. Simoyama, N. Georgiev, T. Mozume, and H. Ishikawa, *Appl. Phys. Letts.* **83**, 1854-1856 (2003).
139. "Understanding the ultra-low intersubband saturation intensity in InGaAs/AlAsSb quantum wells", Achanta Venu Gopal, H. Yoshida, T. Simoyama, N. Georgiev, T. Mozume, and H. Ishikawa, *IEEE J. Quant. Electron.* **39**, 299-305 (2003).
140. "Intersubband absorption saturation in InGaAs/AlAsSb quantum wells", Achanta Venu Gopal, H. Yoshida, A. Neogi, T. Mozume, N. Georgiev, T. Simoyama, O. Wada, and H. Ishikawa, *IEEE J. Quant. Electron.* **38**, 1515-1520 (2002).
141. "1.35 $\mu$ m intersubband transition in InGaAs/AlAsSb single quantum wells", Achanta Venu Gopal, H. Yoshida, T. Simoyama, T. Mozume, and H. Ishikawa, *Electron. Letts.* **38**, 600-602 (2002).
142. "Well width and doping density dependence of the 1.35 $\mu$ m intersubband transition in InGaAs/AlAsSb quantum wells", Achanta Venu Gopal, H. Yoshida, T. Simoyama, T. Mozume, and H. Ishikawa, *Appl. Phys. Letts.* **80**, 4696-4698 (2002).
143. "1.55 $\mu$ m picosecond all-optical switching by using absorption in InGaAs-AlAs-AlAsSb coupled quantum wells", T. Akiyama, N. Georgiev, T. Mozume, H. Yoshida, Achanta Venu Gopal, and O. Wada, *IEEE Photon. Tech. Letts.* **14**, 495-497 (2002).
144. "Intensity correlated nonlinear photoluminescence spectra in undoped and p-doped GaAs and GaAs Quantum Wells", Bipul Pal, Achanta Venu Gopal, S. S. Prabhu, and A. S. Vengurlekar, *Phys. Rev. B* **65**, 045312 (2002).
145. "Large improvement in intersubband saturation intensity in InGaAs/AlAsSb quantum well", Achanta Venu Gopal, H. Yoshida, A. Neogi, T. Mozume, N. Georgiev, T. Simoyama, O. Wada, and H. Ishikawa, *Electron. Letts.* **37**, 1265-1267 (2001).
146. "Nonlinearity and recovery time of 1.55 $\mu$ m intersubband absorption in InGaAs/AlAs/AlAsSb coupled quantum wells", T. Akiyama, N. Georgiev, T. Mozume, H. Yoshida, Achanta Venu Gopal, and O. Wada, *Electron. Letts.* **37**, 129-131 (2001).
147. "Absorption saturation of intersubband transition in InGaAs/AlAsSb quantum well characterized by absorption spectral analysis", Achanta Venu Gopal, H. Yoshida, A. Neogi, T. Mozume, N. Georgiev, O. Wada, and H. Ishikawa, *Jpn. J. Appl. Phys.* **40**, L1015 (2001).
148. "Unequal dependence of the dephasing rates for inhomogeneously broadened excitons on the intensities of the exciting beams in four-wave-mixing measurements", Bipul Pal, Achanta Venu Gopal, and A. S. Vengurlekar, *Phys. Rev. B* **63**, 33301 (2000).
149. "Well width dependence of light hole exciton dephasing in GaAs quantum wells", Achanta Venu Gopal, and A. S. Vengurlekar, *Phys. Rev. B* **62**, 4624 (2000).
150. "Exciton-exciton scattering in GaAs/AlAs lateral superlattice", Achanta Venu Gopal, A. S. Vengurlekar, F. Laruelle, B. Etienne, and J. Shah, *Solid State Commun.* **115**, 517 (2000).
151. "Photoluminescence study of exciton-optical phonon scattering in bulk GaAs and GaAs quantum wells" Achanta Venu Gopal, Rajesh Kumar, A. S. Vengurlekar, A. Bosacchi, S. Franchi, L. N. Pfeiffer, and J. Shah, *J. Appl. Phys.* **87**, 1858 (2000).
152. "Carrier Dynamics in GaAs/AlAs Quantum Wire Arrays", Achanta Venu Gopal, Rajesh Kumar, A. S. Vengurlekar, T. Mèlin, F. Laruelle, and B. Etienne, *Ind. J. Pure & Appl. Phys.* **37**, 635 (1999).
153. "Exciton-Phonon Scattering in GaAs/AlAs Quantum Wires", Achanta Venu Gopal, Rajesh Kumar, A. S. Vengurlekar, T. Mèlin, F. Laruelle, and B. Etienne, *Appl. Phys. Lett.* **74**, 2474 (1999).

154. "Exciton Formation and Relaxation Dynamics in Quantum Wires", Rajesh Kumar, A. S. Vengurlekar, Achanta Venu Gopal, T. Mèlin, F. Laruelle, B. Etienne, and J. Shah, Phys. Rev. Lett. **81**, 2578 (1998).