

Kanchan Gehlot

Assistant Professor

Department of Physics

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TEACHING EXPERIENCE

Assistant Professor: Department of Physics, University of Rajasthan (Since December 2013)

QUALIFICATIONS AND EXPERIENCE:

M. Sc. (Physics) Indian Institute of Technology Delhi, India- 2009

B.Sc. (Physics, Chemistry, Maths.) Jai Narain Vyas University, Jodhpur-2006

Student Trainee:School of Engineering and Mathematical Sciences,
City University London, UK- June-July, 2011.

Ph. D.: Indian Institute of Technology Delhi, India- *Continuing* (as on January 2016)

CONFERENCES ORGANIZED

International OSA Network of Student (IONS) Conference Delhi, December 1-2, 2011.

AWARDS & ACHIEVEMENTS

- **Best Paper Award:** International OSA Network of Student (IONS), Chennai, India, 2012
- **President:** IIT Delhi Student Chapter of OSA (2011-2012)
- **Best Poster Award:** XXXVI OSI Symposium on Frontiers in Optics and Photonics, Delhi, 2011
- **CSIR Senior Research Fellow:** 2011-2013
- **CSIR Junior Research Fellow:** 2009-2011.
- **Graduate Aptitude Test in Engineering (GATE)-2008**
- **University Gold Medal(JNVU)– 2006**

- **Sir Donald Field Gold Medal-2006**

MEMBERSHIP OF PROFESSIONAL BODIES: Optical Society of India (OSI)

Optical Society of America (OSA)

RESEARCH INTERESTS

- Theoretical and numerical modelling of optical phenomena
- Development of approximate/numerical methods
- Study of propagation, scattering and modal problems in linear/nonlinear media in photonics

RESEARCH EXPERIENCE

Doctoral Research: Department of Physics, IIT Delhi, 2009-present (as on January 2016)

(PhD Supervisor: Prof. Anurag Sharma)

- Proposed thesis title: Modelling and Analysis of Photonic devices
- Development of approximate methods to study modal and propagation characteristics of optical waveguides
- Numerical study of photonic devices to achieve optimum functionality

MSc Project Research: Department of Physics, IIT Delhi, 2008-2009 (Research Advisor: Dr. Sankalpa Ghosh)

- Thesis Title: Effect of Rotation on Dipolar Bose-Einstein Condensates
- Numerical modelling of formation of vortex and vortex lattice in a rotating Bose-Einstein condensate

LIST OF PUBLICATIONS

A. INTERNATIONAL JOURNALS

1. **K. Gehlot**, A. Sharma, "Approximate analysis of planar photonic bandgap waveguides: a simple semi-analytical method", *Optical and Quantum Electronics*, Vol. **46**, Issue 3, pp. 455-464 (2014).
2. **K. Gehlot** and A. Sharma, "Semi-vector iterative method for modes of high-index-contrast nanoscale waveguides", *Optics Express*, Vol. **21**, No. 8, pp. 9807-9812 (2013).

B. PAPERS IN CONFERENCE PROCEEDINGS

1. P. Bindal, **K. Gehlot** and A. Sharma, "Effective index approximation for photonic crystal slabs: modelling of out-of-plane losses", **PHOTONICS-2010**: International Conference on Fiber Optics and Photonics, Guwahati (India), December 11-15, 2010, *ISBN: 978-81-309-1719-1*, pp. 451.
2. **K. Gehlot**, D. M. H. Leung, A. Agrawal, and B. M. A. Rahman, "Optimization of power confinement in silicon slot waveguide", **XXXVI OSI Symposium on Frontiers in Optics and Photonics (FOP11)**, Delhi (India), December 3-5, 2011, Conference Proceedings, *ISBN: 978-81-309-1964-5*, pp. 254.
3. **K. Gehlot** and A. Sharma, "Analysis of 2D photonic bandgap waveguides using a simple analytical method", **PHOTONICS-2012**: International Conference on Fiber Optics and Photonics, Chennai (India), December 9-12, 2012, *ISBN: 978-1-55752-959-6*, pp.1-3.
4. **K. Gehlot** and A. Sharma, "Simple analytical approach to optimize structure parameters of photonic crystal waveguide coupler", XXI International Workshop on Optical Waveguide Theory and Numerical Modelling (**OWTNM-2013**), Enschede, The Netherlands, April 19-20, 2013. Conference Proceedings, *ISBN: 978-90-365-3538-0*, pp. O-5.3
5. **K. Gehlot** and A. Sharma, "Modified optimal variational method to study modal characteristics of Si photonic wire waveguides", XXI International Workshop on Optical Waveguide Theory and Numerical Modelling (**OWTNM-2013**), Enschede, The Netherlands, April 19-20, 2013, Conference Proceedings, *ISBN: 978-90-365-3538-0*, pp. P-02
6. **Kanchan Gehlot**, Anurag Sharma, "Modal Study of Silicon-Based Slot Waveguide using Approximate Semi-vector Analysis", Workshop on Recent Advances in Photonics (**WRAP 2013**), IIT Delhi, New Delhi (India), December 17-18, 2013, *ISBN: 978-1-4799-4864-2*, pp 1-2.
7. **Kanchan Gehlot** and Anurag Sharma, "Approximate analysis of Si slot waveguide dispersion characteristics", **International Conference on Fibre Optics and Photonics 2014**, Kharagpur, India, 13-16 December 2014, *ISBN: 978-55752-882-7*.