Publications

A) Research papers published in reputed journals: *Total number:* **39**

1. **Rai, V. K.,** Rai, D.K. and Rai, S.B. (2003): Overtone bands in aniline and its chloroderivatives-a low concentration study. Spectrochim. Acta A 59, 1299-1306.
2. **Rai, V. K.** and Rai, S.B. (2003): Overtone absorption spectra of some aliphatic amines. Ind. J. Phy. B 77, 351-354.
3. **Rai, V.K.**, Rai, A. K., Rai, D.K. and Rai, S.B. (2004): Overtone spectra of aniline derivatives. Spectrochim. Acta A 60, 53-56.
4. **Rai**, **V.K.**, Rai, S.B., Singh, I. D. and Siyaram (2004): Spectroscopic studies of some aliphatic alcohols. Ind. J. Phy. B 78, 1-6.
5. **Rai**, **V.K**., Rai, D. K. and Rai, S. B. (2004): Optical properties of Tb^{3+}doped in tellurite glass. J. Material Science Letter 39, 4971-4975.
6. **Rai, V.K.** and Rai, S. B. (2004): Optical transitions of Dy^{3+} doped in tellurite glass-Observation of upconversion. Solid State Communications 132, 647-652.
7. Tripathi, G., **Rai, V.K.** and Rai, S.B. (2004): Overtone bands in Phenol derivatives. Ind. J. Phys. B 78, 1377-1380.
8. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2005): Spectroscopic properties of Pr^{3+} doped in tellurite glass. Spectrochim. Acta A 62, 302-306.
9. Tripathi, G., **Rai, V.K.** and Rai, S.B. (2005): Spectroscopy and upconversion of Dy^{3+} doped in Sodium Zinc phosphate glass. Spectrochim Acta A 62, 1120-1124.
10. Rai, A. and **Rai**, **V.K.** (2005): Optical properties and upconversion in Pr^{3+} doped in Aluminium, Barium, Calcium Fluoride glass-II. Ind. Chemical Society, 82, 697-700.
11. Rai, A. and **Rai, V.K.** (2006): Optical properties and upconversion in Pr^{3+} doped in Aluminium, Barium, Calcium Fluoride glass-I.. Spectrochim. Acta A 63, 27-31.
12. **Rai**, **V.K.**, Rai, S. B. and Rai, D.K. (2006): Optical properties of Dy^{3+} doped in tellurite glass. Optics Communications 257, 112-119.
13. **Rai**, **V.K.**, Rai, S.B. and Rai, D.K. (2006): Pr^{3+} doped tellurite glass as temperature sensor. Sensors and Actuators A 128, 14-17.

14. Tripathi, G., **Rai, V.K.** and Rai, S.B. (2006): Spectroscopic studies of Eu^{3+} doped calibo glass: Effect of the addition of barium carbonate, energy transfer in the presence of Sm^{3+}. Optics Communications 264, 116-122.
15. Tripathi, G., **Rai, V.K.** and Rai, S.B. (2006): Optical properties of Sm^{3+}: CaO-Li_2O-B_2O_3-BaO glass and codoped Sm^{3+}:Eu^{3+}. Appl. Phys. B 84, 459-464.
16. **Rai, V.K.** and Rai, S.B. (2006): Experimental validation of fluorescence intensity ratio/fluorescence lifetime temperature sensing technique Sensors & Transducers Journal 74, 839-843.
17. **Rai, V.K.** and Rai, A. (2007): Temperature sensing behaviour in Eu^{3+} doped tellurite and calibo glasses. Appl. Phys. B 86, 333-335.
18. **Rai**, **V.K.**, Kumar, K. and Rai, S. B. (2007): Upconversion in Pr^{3+} doped in tellurite glass. Optical Materials 29, 873-878.
19. Rai, N. and **Rai, V.K.** (2007): Lifetime based temperature sensing. Sensors & Transducers Journal 77, 1040-1044.
20. **Rai, V. K.** and Rai, S.B. (2007): A comparative study of FIR and FL based temperature sensing schemes: An example of Pr^{3+}. Appl. Phys. B 87, 323-325.
21. Tripathi, G., **Rai, V.K.**, Rai, D.K. and Rai, S.B. (2007): Upconversion in Er^{3+} doped Bi_2O_3-Li_2O-BaO-PbO tertiary glass. Spectrochim. Acta A 66, 1307-1311.
22. **Rai, V.K.** and Rai, S.B. (2007): Frequency upconversion in Pr^{3+}:Li_2O-TeO_2 binary glass by decay curve analysis. Spectrochim. Acta A 68, 460-462.
23. Tripathi, G., **Rai, V.K.** and Rai, S.B. (2007): Upconversion and Temperature sensing behavior in Er^{3+} doped tertiary glass. Optical Materials 30, 201-206.
24. **Rai, V.K.** (2007)**:** Sm^{3+} as a Fluorescence lifetime temperature sensing. IEEE Sensors Journal 7, 1110-1111.
25. **Rai, V.K.,** Menezes, L. S. and Araujo, C. B. de (2007): Stokes luminescence and frequency upconversion in Pr^{3+} doped TeO_2-PbO glass. J. Appl. Phys., 101, 123514 (1-3).
26. **Rai, V.K.** (2007): Temperature Sensor and Optical Sensor. Appl. Phys. B 88**,** 297-303.
27. **Rai, V.K.**, Menezes, L. S. and Araujo, Cid B. de (2007): Spectroscopy, energy transfer and frequency upconversion in Tm^{3+} doped TeO_2-PbO glass. J. Appl. Phys., 102, 43505 (1-4).
28. **Rai, V.K.** and Rai, S.B. (2007): Temperature sensing behavior of the Stark sublevels. Spectrochim. Acta A 68, 1406-1409.

29. **Rai, V.K.** and Araujo, C. B. de (2008): Fluorescence intensity technique for Sm^{3+} doped calibo glass. Spectrochim Acta A, 69 509-512.
30. **Rai, V.K.**, Menezes, L. S. and Araujo, Cid B. de (2008): Infrared –to- green and blue upconversion in Tm^{3+} doped TeO_2- PbO glass. J. Appl. Phys., 103 53514 (1-4).
31. **Rai, V.K.** and Araujo, C. B. de (2008): Limit of accuracy for fluorescence lifetime temperature sensing. Spectrochim. Acta A, 71 116-118.
32. Tripathi, G., Rai, V.K. and Rai, S.B. (2008): Energy transfer between Er^{3+}: Sm^{3+}codoped binary tellurite glass. Spectrochim. Acta A, 71 486-489.
33. **Rai, V.K.**, Menezes, L. S. and Araujo, Cid B. de (2008): Two photon absorption in TeO_2-PbO glass excited at 532 and 590nm. Appl. Phys. A, 91 441-443.
34. **Rai, V.K.,** Araujo, C. B. de, Ledemi, Y., Bureau, B., Poulain, M., Zhang, X. H. and Messaddeq, Y. (2008): Frequency upconversion in a Pr^{3+} doped chalcogenide glass containing silver nanoparticles. J. Appl. Phys., 103, 103526 (1-4).
35. **Rai, V.K.**, Menezes, L. S., Araujo, Cid B. de, Kassab Luciana R. P., Silva Davinson M. da, Kobayashi Renata A. (2008): Surface-plasmon-enhanced frequency upconversion in Pr^{3+} doped tellurium-oxide glasses containing silver nanoparticles. J. Appl. Phys., 103, 093526 (1-4).
36. Singh, V., **Rai, V. K.**, Ledoux, I., Watanabe, S., Gundu Rao, T. K., Chubaci, J.F.D., Badie, L., Pelle, F., Ivanova, S. (2009): NIR to Visible up-conversion, Infrared luminescence, thermoluminescence and defect centers in Y_2O_3:Er phosphor phosphor. J. Phys. D, 42 65104 (1-9).
37. **Rai, V. K.** (2009): Upconversion due to Energy transfer involving Pr^{3+} ions in pairs. Appl. Phys. B, 95 329-333.
38. Singh, V., **Rai, V. K.**, Ledoux-Rak, I., Kwak, Ho-Young (2009): Visible upconversion and NIR luminescence studies of Visible upconversion and NIR luminescence studies of $LiAl_5O_8$: Er phosphor co-doped with Yb^{3+} and Zn^{2+}. Appl. Phys. B (accepted-2009), http://dx.doi.org/10.1007/s00340-009-3472-5.
39. Singh, V., **Rai, V. K.**, Ledoux-Rak, I., Kwak, Ho-Young (2009): Visible upconversion and infrared luminescence investigations of Al_2O_3 powders doped with Er^{3+}, $Yb^{3+}$and Zn^{2+}ions. Appl. Phys. B (accepted-2009).

B) Contributions to academic National / International conferences: 16

1. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2001): Overtone bands in aniline and its chloroderivatives. National Symposium on Atomic, Molecular, Structure, Interactions and Laser Spectroscopy held at B.H.U. Varanasi India.
2. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2004): Overtone bands in aliphatic aniline derivative. National Symposium on Atomic, Molecular, Structure, Interactions and Laser Spectroscopy held at B.H.U. Varanasi India.
3. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2004): Optical studies of Dy^{3+} doped in tellurite glass. The 15^{th} National Conference of the ISAMP held at Physical Research Laboratory, Ahmedabad India.
4. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2004): Optical properties of Tb^{3+} doped tellurite glass. 7th Conference of the International Academy of Physical Sciences (CONIAPS-VII,) held at University of Allahabad India, December 21-23,.
5. Tripathi, G., **Rai, V. K.** and Rai, S. B. (2004): Overtone bands in Phenol derivatives. 7th Conference of the International Academy of Physical Sciences (CONIAPS-VII, 2004) held at University of Allahabad India, December 21-23.
6. **Rai**, **V.K.** and Rai, S. B. (2005): Upconversion in triply ionized praseodymium doped tellurite glass´ International conference- Humboldt Kollege, Structure and Characterization of Physical, Chemical, Bio and Geo Materials, held at BHU India, November 28-30.
7. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2005): Triply ionized praseodymium as a temperature sensor. National Symposium on Recent Trends in Fluorescence Spectroscopy and its applications, held at Kumaun University Nainital Uttaranchal India, December 1-3.
8. Tripathi, G., **Rai**, **V.K.** and Rai, S. B. (2005): Spectroscopy and Upconversion of Dy^{3+} doped in phosphate glass. National Symposium on Recent Trends in Fluorescence Spectroscopy and its applications, held at Kumaun University Nainital Uttaranchal India December 1-3.
9. **Rai**, **V.K.**, Rai, D. K. and Rai, S. B. (2006): Triply ionized praseodymium as temperature sensor. INDO-US workshop on Future Trends in Spectroscopy: Application to National Security held at BHU Varanasi India, January 9-11.
10. Tripathi, G., **Rai**, **V.K.** and Rai, S. B. (2006): Spectroscopic studies of Eu^{3+} doped calibo glass. 2^{nd} International Conference on ´Current Developments in Atomic,

Molecular & Optical Physics with applications ´CDAMOP´ held at K. M. College, Delhi University India, March 21-23.

11. **Rai**, **V.K.** (2006): Pr^{3+} doped lithium tellurite glass as a temperature sensor. International Symposium on Non-oxide Glasses ´ISNOG´ held at Indian Institute of Science Banglore India, April 10-14.
12. Y. Ledemi, Y. Messaddeq, B. Bureau, M. Poulain, X. H. Zhang, Rai, V. K., Araujo, Cid B. de (2007): ´Upconversion in Pr^{3+} doped chalcogenide glasses containing silver nano structures´ IV International Symposium on Non-Crystalline Solids / VIII Brazilian Symposium on glass and related materials, Aracaju, Serjipe, Brasil, October 21-25.
13. Y. Ledemi, B. Bureau, M. Poulain, X. H. Zhang, Y. Messaddeq, Rai, V. K. and Araujo, Cid B. de (2008): ´Enhancement of rare-earth ions luminescence in sulphide based glasses for low energy lighting' 16th International Symposium on Non Oxide and New Optical Glasses (ISNOG), Montpellier, France, April 21-25.
14. Rai, V.K., Menezes, L. S. and Araujo, Cid B. de (2008): 'Linear and nonlinear optical properties of TeO_2-PbO glass samples pure and singly doped with Pr^{3+} and Tm^{3+},' XXXI ENCONTRO NACIONAL DE FÍSICA DA MATÉRIA CONDENSADA, Águas de Lindóia, Sao Paulo Brasil, May 5-9.
15. Rai, V. K. (2009): 'Upconversion Due to Energy Transfer Involving Pr^{3+} ions in pairs' National Symposium on Advances in Lasers and Spectroscopy, Department of Physics & Electronics and Department of Chemistry, Dr. Hari Singh Gour Vishwavidyalaya Sagar (M. P.), India, February 27-28.
16. Rai, V. K.. (2009): Meghnad Saha Memorial Symposium on "Emerging Trends in Laser & Spectroscopy and Applications" MMSETLSA-2009, (delivered an invited talk) Department of Physics, Allahabad University, Allahabad, India, March 23-25.