Dr. Rajesh Kumar Verma
Ph.D. (Physics Department, BHU)

Academic Record

2013 PhD (Banaras Hindu University)

2004 M.Sc.(Physics) U.P. Autonomous college, Varanasi; VBS Purvanchal University, Jaunpur

2002 B.Sc. (Physics, Math) U.P. Autonomous college, Varanasi; VBS Purvanchal University, Jaunpur

Title of the thesis:

Optical properties of rare earth doped glasses, glass ceramic and phosphor materials.

Thesis Supervisor: *Prof. S. B. Rai, Banaras Hindu University (BHU)*

Area of Specialization*:*

Synthesis glass (melt quench as well as Sol-gel technique), Phosphor and composite material, Synthesis of nanoparticles by pulsed laser ablation, Carbon Nanoparticles by solvothermal methods.

List of Publications

1. Bismuth functionalized PVA film: field, plasmonic and pH effect on PVA originated broad photoluminescence, B Kumar, G Kaur, **R K Verma**, A Bahadur, S B Rai, **RSC Advances** 6 (2016) 26984-2699.
2. Infrared to infrared upconversion emission in Pr 3+/Yb 3+ co-doped La 2 O 3 and La (OH) 3 nano-phosphors: A comparative study, R S Yadav, R K **Verma**, A Bahadur, S B Rai, **Spectrochimica Acta Part A**: 142, (2015) 324-330.
3. Structural characterizations and intense green upconversion emission in Yb 3+, Pr 3+ co-doped Y 2 O 3 nano-phosphor, RS Yadav, RK Verma, A Bahadur, SB Rai, **Spectrochimica Acta Part A**, 137 (2015) 357-362.
4. Bismuth Induced Enhanced Green Emission from Terbium ion and its Complex in Thin Film. Gagandeep Kaur, **R. K. Verma**, B. K. Yadav and S. B. Rai, ***Dalton Transactions*** 43 (28), 11014-11018
5. Observation of multi-mode: Upconversion, downshifting and quantum-cutting emission in Tm^{3+}/Yb^{3+}co-doped Y_2O_3 phosphor,
   R Yadav, SK Singh, **R. K. Verma**, SB Rai, ***Chemical Physics Letters*** 599 (2014) 122-126.
6. Intense white light from $Yb^{3+}/Er^{3+}/Tm^{3+}$ codped Y_2O_3 phosphor and effect of ZnO. R. S. Yadav, **R. K. Verma**, S. B. Rai, ***J. Phys. D: Appl. Phys.*** **46** (2013) 275101
7. *"*Continuum emission in Nd^{3+}/Yb^{3+} co-doped $Ca_{12}Al_{14}O_{33}$ phosphor: Charge transfer state luminescence versus induced optical heating"
   R. K. Verma, S. B. Rai, **Chemical Physics Letters, 559 (2013) 71–75.**
8. "Pulsed laser synthesis of spherical Bi quantum dots and its optical properties" **R. K. Verma**, K. Kumar, S. B. Rai, **Journal of *Colloidal and Interface Sciences****, 390(2013)11-16.*
9. Laser induced optical heating from Yb^{3+}/Ho^{3+}:$Ca_{12}Al_{14}O_{33}$ and itsapplicability as a thermal probe,
   R. K. Verma, S. B. Rai, **Journal of Quantitative Spectroscopy & Radiative**

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10. Dual mode green fluorescence from Tb^{3+}:$Ca_{12}Al_{14}O_{33}$ and its applicability as delayed fluorescence.
R.* K. Verma**, G. Kaur, A. Rai, S. B. Rai, ***Materials Research Bulletin*, 47(2012)3726-3731.*
11. Upconversion, avalanche effect and controlled optical switching in Yb^{3+}, Ho^{3+} co-doped $Ca_{12}Al_{14}O_{33}$ phosphor,
R. K. Verma, S.K. Singh, S.B. Rai, **Current Applied Physics** 12 (2012) 1-4.
12. Defect level influenced optical properties of Eu^{3+} and Tb^{3+} doped in ZnO-CaAlxOy composite,
R. K. Verma, A.K. Singh , D.K. Rai , S. B. Rai, **Materials Chemistry and Physics** 135 (2012) 1-6.
13. Plasmon-enhanced luminescence of Sm complex using silver nanoparticles in Polyvinyl Alcohol,
G. Kaur, **R. K. Verma**, D. K. Rai, S. B. Rai , **Journal of Luminescence** 132 (2012) 1683–1687.
14. *Change in structural morphology on addition of ZnO and its effect on fluorescence: Yb^{3+}/Er^{3+} doped Y_2O_3,*
R. V. Yadav, **R. K. Verma**, G. Kaur, S. B. Rai, ***Spectrochimica Acta: Part A,*** 103(2012) *216-221*.
15. Anomalous heating effect behavior in some rare earth doped phosphor,
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16. Infrared to visible upconversion in Ho^{3+}/Yb^{3+} co-doped Y_2O_3 phosphor: Effect of laser input power and external temperature.
Monika Rai, K. Mishra, S. K. Singh, **R. K. Verma**, S. B. Rai, ***Spectrochimica Acta Part A****, 97 (2012) 825-829.*
17. "Investigation of structural properties and its effect on optical properties: Yb^{3+}/ Tb^{3+} codoped in aluminum silicate glass"
R. K. Verma, D. K. Rai, S. B. Rai, ***Journal of Alloys and Compounds*** 509 (2011) 5591–5595.
18. "Dual mode emission and harmonic generation in ZnO-CaO-Al_2O_3: Er^{3+} nano-composite"
R. K. Verma, K. Kumar, S. B. Rai, ***Journal of Luminescence*** 131 (2011) 988–993.
19. "Inter-conversion of Tb^{3+} and Tb^{4+} states and its fluorescence properties in MO–Al_2O_3: Tb (M = Mg, Ca, Sr, Ba) phosphor materials"
R. K. Verma, K. Kumar, S. B. Rai, ***Solid State Sciences***, *Volume 12, 7*, *(2010)*, *1146-1151.*
20. "Pulsed laser ablation synthesis of silver nanoparticles and their use in fluorescence enhancement of Tb^{3+}-doped aluminosilicate glass"
R. K. Verma, K. Kumar, S. B. Rai ***Solid State Communications*** *150*, *(2010)*, *1947-1950.*
21. "Up and down conversion fluorescence studies on combustion synthesized Yb^{3+}/Yb^{2+}: MO-Al_2O_3 (M=Ca, Sr and Ba) phosphors"
R. K. Verma, K. Kumar, S. B. Rai, ***Journal of Luminescence****, Volume 130, Issue 7*, *(2010)*, *1248-1253.*
22. "UV/blue upconversion in Nd^{3+}:TeO2 glass, effect of modifiers and heat treatment on the fluorescence bands"
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