

Few selected publications in SCI journals

1. Sasank Pattnaik, **Rai, V. K.** (2021): Insight into the spectroscopic and thermometric properties of titanate phosphors via a novel co-excited laser system, Materials Science & Engineering B (accepted).
2. Joydip Dutta, **Rai, V.K.:** Upconverting BiYO₃ nanophosphors in DSSCs applications, Optics and Laser Technology, 140, 107087, 2021.
3. Lakshmi Mukhopadhyay, **Rai, V. K.:** Colloidal stability and optical thermometry in mesoporous silica coated phosphate based upconverting nanoparticles, J. Alloys and Compounds, 878, 160351, 2021.
4. Manisha Mondal, V. K. Rai, Multiple ratiometric thermometry: Enhanced sensing behaviour via Stark sublevels, Journal of Alloys and Compounds, 844, 155914, 2020.
5. Manisha Mondal, V. K. Rai, Optical thermometry using Stark sublevels in charge compensated transition metal molybdate upconverting phosphors, Optics & Laser Technology, 130, 106341, 2020.
6. Manisha Prasad, Rai, V.K., Influence of transition metal ions: Broad band upconversion emission in thermally stable phosphors, Journal of Alloys and Compounds, 837, 155289, 2020.
7. Sasank Pattnaik, Rai, V.K., Impact of charge compensation on optical and thermometric behaviour of titanate phosphors, Materials Research Bulletin, 125, 110761, 2020.
8. Tamilmani Vairapperumal, Mukhopadhyay Lakshmi, Rai, V.K. Sreeram Kalarical Janardhanan, Mishra Ashok Kumar, Dual mode luminescence from lanthanum orthovanadate nanoparticles, Journal of Luminescence , 217, 116761, 2020.
9. Lakshmi Mukhopadhyay, Rai, V.K., Thermally stable red emitting xenotime phosphate nanophosphors for displays, Materials Research Bulletin, 121, 110628, 2020.
10. Manisha Mondal; Rai,V.K., An effective way to enhance upconversion emission and temperature sensing via Zn²⁺ incorporation in Er³⁺-Yb³⁺: YMoO₄ nanophosphors, Journal of Industrial and Engineering Chemistry, 60, 125-132, 2018.
11. Lakshmi Mukhopadhyay, Rai,V.K. , Investigation on photoluminescence properties, Judd-Ofelt analysis, luminescence nano thermometry and optical heating behaviour of Er³⁺/Eu³⁺/Yb³⁺: NaZnPO₄ nanophosphors, New Journal of Chemistry, 42, 13122-13134, 2018.

12. A. Dubey, A. K. Soni, Astha Kumari, Riya dey, Rai, V. K., Enhanced green upconversion emission in $\text{NaYF}_4:\text{Er}^{3+}\text{-Yb}^{3+}\text{-Li}^+$ phosphors for optical thermometry, *Journal of Alloys and Compounds*, 693, 194–200, 2017.
13. Abhishek Kumar Soni, Rai, V. K., Thermal and pump power effect in $\text{SrMoO}_4:\text{Er}^{3+}\text{-Yb}^{3+}$ Phosphor for thermometry and optical heating, *Chemical Physics Letters*, 667, 226–232, 2017.
14. Manisha Mondal; Rai, V.K.; Chandan Srivastava, Influence of silica surface coating on optical properties of $\text{Er}^{3+}\text{-Yb}^{3+}:\text{YMoO}_4$ upconverting nanoparticles, *Chemical Engineering Journal*, 327, 838–848, 2017.
15. Tamilmani, Vairapperu mal; Kumari, Astha; Rai, V.K.; Unni Nair, Balachandran; Sreeram, Kalarical Janardhanan, Bright green frequency upconversion in catech in based $\text{Yb}^{3+}/\text{Er}^{3+}$ codoped LaVO_4 nanorods upon 980 nm excitation., *Journal of Physical Chemistry C*, 121, 4505–4516, 2017.
16. Renuka Bokolia.; Manisha Mondal; Rai, V. K.; K. Sreenivas, Enhanced infrared- to-visible up- conversion emission and temperature sensitivity in $(\text{Er}^{3+}, \text{Yb}^{3+}, \text{ and } \text{W}^{6+})$ tri-doped $\text{Bi}_4\text{Ti}_3\text{O}_{12}$ ferroelectric oxide, *Journal of Applied Physics*, 121, 84101, 2017.
17. Lakshmi Mukhopadhyay, Rai, V. K., Upconversion based near white light emission, intrinsic optical bistability and temperature sensing in $\text{Er}^{3+}/\text{Tm}^{3+}/\text{Yb}^{3+}/\text{Li}^+:\text{NaZnPO}_4$ phosphors, *New Journal of Chemistry*, 41, 7650-7661, 2017.
18. Mohd Azam; Rai, V. K., D. K. Mohanty, Spectroscopy and enhanced frequency upconversion in $\text{Nd}^{3+}\text{-Yb}^{3+}$ codoped TPO glasses: Energy transfer and NIR to visible upconverter, *Methods and Applications in Fluorescence*, 5, 35005, 2017.
19. Sushil K. Ranjan; A. K. Soni; Rai, V. K., Frequency upconversion and fluorescence intensity ratio method in Yb^{3+} ions sensitized $\text{Gd}_2\text{O}_3:\text{Er}^{3+}\text{-Eu}^{3+}$ Phosphors for display and temperature sensing., *Methods and Applications in Fluorescence*, 5, 35004, 2017.
20. Abhishek Kumar Soni, Rai, V.K., Santosh Kumar, Cooling in $\text{Er}^{3+}:\text{BaMoO}_4$ phosphor on codoping with Yb^{3+} for elevated temperature sensing, *Sensors and Actuators B: Chemical*, 229, 476-482, 2016.
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25. Manoj K. Mahata; Kaushal Kumar; Rai, V. K., $\text{Er}^{3+}\text{--Yb}^{3+}$ doped vanadate nanocrystals: A highly sensitive thermographic phosphor and its optical nano heater behavior, *Sensors and Actuators B: Chemical*, 209, 775–780, 2015.
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27. Abhishek Kumar Soni, Riya Dey, Rai, V. K., Stark sublevels in $\text{Tm}^{3+}\text{--Yb}^{3+}$ codoped $\text{Na}_2\text{Y}_2\text{B}_2\text{O}_7$ nanophosphor for multifunctional applications, *RSC Advances*, 5, 34999–35009, 2015.
28. Anurag Pandey, S. Som, Vijay Kumar, Vinod Kumar, Kaushal Kumar, Rai V. K., H.C. Swart, Enhanced upconversion and temperature sensing study of $\text{Er}^{3+}\text{--Yb}^{3+}$ codoped tungsten-tellurite glass, *Sensors and Actuators B: Chemical*, 202, 1305–1312, 2014.
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32. Abhishek Kumar Soni, Rai, V. K., $\text{BaZnLa}_2\text{O}_5\text{:Ho}^{3+}\text{--Yb}^{3+}$ phosphor for display and security ink application, *Journal of Optical Society of America (JOSA)B*, 31, 2201–2207, 2014.
33. Rai, V.K., Mishra, P., Multi colour visible light upconversion emission in $\text{Tm}^{3+}\text{--Er}^{3+}$ co-doped $\text{TeO}_2\text{--PbO}$ glass under NIR laser radiation, *Journal of Optical Society of America (JOSA)B*, 31, 1041–1045, 2014.

34. Kumari Astha, Anurag Pandey, Riya Dey, V. K. Rai, Simultaneous influence of $\text{Zn}^{2+}/\text{Mg}^{2+}$ on luminescent behaviour of $\text{La}_2\text{O}_3:\text{Tm}^{3+}-\text{Yb}^{3+}$ phosphor, *RSC Advances*, 4, 21844- 21851, 2014.
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