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7	Brief account of your research interests with special focus on Nano Science and Technology (strictly within 300 words):	Research Interests • Synthesis(chemical, microwave assisted chemical, laser ablation), functionlization and characterization of nanofluids and nano materials • Design and development of Arc discharge system for synthesis of CNT • Thermal and Rheological study of nanofluids (Zn, Ag, Fe, ZnO, Fe_20_3, CNT, etc.) for efficient coolant applications and Nanofuels • Semiconductor nano-structure (ZnO, Tio_2 , CdS, ZnCdS, etc.) thin film deposition using chemical and physical methods including electrochemical deposition • Synthesis, characterization and sensing properties of CeO_2, ZnO/ Mn doped ZnO nanostructure and nanomaterials • Study and characterization of Phoetectric Chemical(PEC) and Dye Sensitized Solar Cell(DSSC) • Photoluminescence behaviour of nanoparticles and thin films • CNT based composites for sensor, actuator and detector applications • Design of TEP unit for measurement of thermoelectric coefficient of thin films • Design and development of thermal property measurement system based on transient methods: Photo acoustic (PA) cell, thermal probe, parallel wire, hot wire and plane heat source and its data acquisition system • Design, development and modeling of piezoelectric sensors and actuators Recent Related Publications: Appx. "A"
8	Keywords related to your research interests (maximum 10, different lines separated by commas)	Nanomaterial Synthesis and characterization, Nanofluids and nanofuels, Semiconductor nano-structure, Photoluminescence, Phoetectric Chemical(PEC) and Dye Sensitized Solar Cell (DSSC), Gas Sensors

Appx. A

Recent related publications:

1. S.B. Patil and **A.K. Singh**, Effect of complexing agent on the photoelectrochemical properties of bath deposited CdS thin films, **Applied Surface Science(Elsevier),** doi:10.1016/j.apsusc.2009.11.043
2. Vijay S. Raykar and **A K Singh**, Surface plasmon absorption study of silver NP thin film containing 2,2′-bipyridine, **Materials Science and Engineering: B(Elsevier),** doi:10.1016/j.mseb.2009.11.016
3. **A K Singh**, V Viswanath & V C Janu, Synthesis, effect of capping agents, structural, optical and photoluminescence properties of ZnO nanoparticles, **J. Lumniscence (Elsevier), 129, 2009, 874-878**.
4. **A K Singh** & Vijay S Raykar, Microwave synthesis of silver nanofluids with polyvinylpyrrolidone (PVP) and their transport properties, **Colloid and Polymer Science** (Springer), 286:1667-1673, 2008.
5. **A K Singh**, Thermal study of nanofluids, **Def. Sc. J**. (India), 58(5), 2008,600-607.
6. Vijay S. Raykar, *&* **A K Singh**, Thermal and Rheological Behavior of Acetylacetone Stabilized ZnO Nanofluids, **Thermochemica Acta**, accepted for publication, 2009.
7. Priyusha Bagdare & **A K Singh**, Microwave Synthesis, Optical, Structural and Magnetic Properties of ZnO/Mn Doped ZnO Nanostructures**, J. Nanoparticle Research** (Spinger), Submitted for publication, 2009.
8. SS Multani and **AK Singh**, Growth and characterization of ZnO nanowires and nanotetrapods using microwave assisted wet chemical method for gas and explosives sensing, **Sensors and Actuators B: Chemical** (Elsevier), Submitted for publication, 2009.
9. **AK Singh**, S B Patil and V C Janu, Structural, optical and electrical characterization of nano-structured ZnO thin films grown by solution growth technique, **IEEE- Nano** 2008, 8th IEEE Conference on Nanotechnology, Aug. 18-21, at Arlington,Texas, USA, 978-1-4244-2104-6/08 ©2008 IEEE.
10. Priyusha Bagdare & **AK Singh**, Microwave synthesis, characterization and life time spectroscopy of ZnO/Mn dopped ZnO nanostructures, 2nd Int. Symposium on Advanced materials and Polymers for Aerospace and Defence Applications, Pune, 08-12 Dec. 2008.
11. **A K Singh**, Synthesis, optical, structural, electrical and sensing properties of ZnO nanoparticles, presented and published in proceedings of The 4th Asian particle technology Symposium (APT 2009) 14-16 Sept. 2009, New Delhi, India.
12. Sharad B Patil and **A K Singh**, Solution Grown Nanocrystalline ZnO Thin Films for UV Emission and LPG Sensing, **Journal of Materials Science**, 2009.
13. Vijay S Raykar, S.K. Sahoo, **A K Singh**, Giant electrorheological effect in Fe_2O_3 nanofluids under low DC electric fields, **J. Applied Physics,** submitted for publication, 2009.
14. **A K Singh**, Synthesis, optical, structural, electrical and sensing properties of ZnO nanoparticles, presented and published in proceedings of The 4th Asian particle technology Symposium (APT 2009) 14-16 Sept. 2009, New Delhi, India.
15. Usha Singh, **A K Singh**, Sandeep Bhati, A Transient Study of Passive Cooling by Nanofluids in a multilayered wall/roof, Indo-Russian Workshop nanotechnology and Laser Induced Plasma - 2009(IRNANO-2009) November 24-26, 2009, Delhi

16. VC Janu, R Singh, **AK Singh** and SG Kulkarni, Chemical synthesis caracterization and thermal analysis of polyaniline/ZnO core shell nano composite, Int. Conf. on Advanced nano nanomaterials and nanotechnology, Dec. 9-11, 2009, Guwahati, India.
17. **A. K. Singh**, S. S. Multani, and S. B. Patil, ZnO nanorods and nanopolypods synthesized using microwave assisted wet chemical and thermal evaporation method submitted to Nanotech Conference and Expo 2010, Anaheim CA, USA, June 21-25, 2010.