Brief Academic Profile of Dr. Anil Kumar, Indian Institute of Technology Roorkee

Name	Dr. Anil Kumar
Designation	Professor
Department	Department of Chemistry,
Address	Indian Institute of Technology Roorkee Roorkee – 247667, Uttarakhand, INDIA
E-mail	anilkfcy@iitr.ac.in; akmshfcy@gmail.com
FAX	+91-1332-273560
Phone	+91-1332-285799; 285218 (O)

Professional Experience:

- **Guest Scientist,** ***Hahn-Meitner-Institut,*** Berlin, **Germany** (1986-1988), Collaborated with Prof. A. Henglein.
- **Research Associate,** ***Radiation Laboratory,*** Univ. of Notre Dame, Notre Dame, Indiana –46556, **USA** (1979-1982), Collaborated mainly with Prof. P.Neta.

Academic Administrative Experience:

- **Professor & Head**, Department of Chemistry (May 2013 to February 2016)
  Indian Institute of Technology Roorkee, Roorkee-247667, Uttarakhand, INDIA.

- **Founder Head,** Centre of Excellence - Nanotechnology (June 2006 to Dec. 2011),
  Indian Institute of Technology Roorkee, Roorkee-247667, Uttarakhand, INDIA.

Honors and Awards:

- **Elected Fellow,** The National Academy of Sciences, Allahabad, India (2003).

- **Star Performer,** Indian Institute of Technology Roorkee, Roorkee (2003-04, 2004-05).

- **First Khosla Research Prize and a Medal** on a Research Paper on Photochemical study on surface capped Semiconductor Nanoparticles (2002).

- **Khosla Research Award and a Silver Medal** on a Research Paper on Photochemistry of Semiconductor Nanoparticles (1993).

- **Received Gold Medal** being Topper in M.Sc., S.D. College, Muzaffarnagar (Meerut Univ,) (1973).

Recognitions

- The paper, entitled ***"Synthesis of Glucose-Mediated Ag-γ- Fe_2O_3 Multifunctional Nanocomposites – A Study of their Catalytic and Antibacterial Activities"*** by Mandeep Kaloti, **Anil Kumar** and N.K. Navani, presented by Mandeep Kaloti won the **Second Best Poster award in** International Conference **on Advanced Materials for Energy, Environment and Health (ICAM-2016)** held during 04-07th March 2016, IIT Roorkee, Roorkee, India.

- Our paper, entitled ***"Viscoelastic Properties of Superparamagnetic 5'-Adenosine Monophosphate Mediated Porous β–FeOOH Hydrogel – Its Loading, and Release Capabilities"*** by **Anil Kumar** and Sudhir K. Gupta and presented by Sudhir K. Gupta won the **best poster award in** 9th India Japan Bilateral Conference **(BICON-2014) on** Advanced Material Science and Engineering.

- **Honorable Guest**, 2nd International Conference & Exhibition on Materials Science and Engineering, October 07-09, **2013**, Las Vegas, USA.

- Received **Certificate of Appreciation** by **American Chemical Society** for valuable contribution and dedicated service in the Peer Review of manuscripts submitted to ACS Journals (**Dec. 2011)**.

- Two of our research papers on 'Nanotechnology Aspects' have been listed/selected under the **most accessed papers** in the first quarter in **'Langmuir'(2007)** and **'Nanotechnology' (2009).**

- '***Synthesis of Fe_2O_3/Ag Core Shell Nanocomposites'*** by **Anil Kumar** and Aditi Singhal and presented by Ms. Aditi Singhal, won the **second poster prize** in "Nanomaterials and Devices Processing and Applications" (**NADPA 2008**).

Professional Activities:

- **Elected Member**, American Chemical Society, USA (1982); **Member** (2007 onwards).
- **Member**, Mirror Committee on Nanotechnology, Bureau of Indian Standards, New Delhi, 2007 - 2014.
- **Member**, Sigma Xi, The Scientific Research Society, USA (1981).
- **Life Member**, Indian Society for Radiation and Photochemical Sciences, Mumbai (1999).
- **Life Member,** Indian Chemical Society, Kolkata.
- **Life Member**, Chemical Research Society of India, Bangalore.
- **Life Member**, Indian Association of Solid State Chemists and Allied Scientists (ISCAS).

Areas of Academic Interest:

Nanoscale materials, Molecular Spectroscopy, Kinetics and Photochemistry, Radiation Chemistry, Chemical Thermodynamics and General Physical Chemistry.

Teaching Experience (Approx. in years): Under Graduate 33 Yrs.
Post Graduate 34 Yrs.

We have made several innovative contributions to the teaching and research in the areas related top Physical Chemistry. He has developed teaching courses on kinetics, photo- and radiation chemistry, spectroscopy, nanoscale materials, supramolecular chemistry and undergraduate physical chemistry. He has been instrumental in developing several advanced research facilities at the institute besides being the founder **Head of the Centre of Excellence on Nanotechnology and Head, Department of Chemistry**. His research has been focused mainly on the investigation of the **'Chemistry of Intermediates,'** analyzing the mechanistic aspects of certain **catalytic, radiolytic and photochemical** reactions.

Research Interests:

Synthesis of Nanomaterials – Semiconductor, Metal and Carbon Nanostructures; Photophysics and Photochemistry of Metal/Semiconductor Nanostructures, Photocatalysis, Supercapacitor, Kinetics of Ultrafast Processes; Reactivity of Unusual Oxidation State Species of Silver.

Current Research Activities:

We have been involved in developing a wide range of nanomaterials *viz.* carbonaceous, semiconductors, metals, and composites of varied dimensionalities, size(s) and shape(s). We have synthesized **a few layer(s) thick N-functionalized** and **ultra-thin graphene sheets**. Some of these materials are found to be highly conducting with fairly high value of specific capacitance at higher current densities exhibiting potential for **supercapacitor applications**. Among semiconductors, synthesis of nanosized CdS, ZnS, PbS, PbSe, ZnSe, TiO_2, ZnO, CuO, β-Fe_2O_3, γ-Fe_2O_3, β-FeOOH, and $AgFeO_2$ have been carried out. **Their optical, optoelectronic, fluorescence and magnetic, catalytic and biological properties have been analyzed and optimized**. Present investigations are focused on developing composite/biotemplated and integrated nanostructures with enhanced properties.

<u>Research Publications in Journals / Presented in Conferences:</u>

Refereed Journals - 87 (**ACS** 16, **RSC** 19, **Elsevier** 18, **Wiley** 04, **IOP** 03, **Springer** 02, **Indian Journals** 08, **Others** 17); **Proceedings/Book Chapters** 04**. (Total Citations** as per Google Scholar Data 1224**; h-index** 19**; i10-index** 35**.)**

Book Chapters Contributed – 02:

(i). V. Kumar and **Anil Kumar, RNA-Mediated CdS-Based Nanostructures,** Luc Ponchon (ed.)**,** *RNA Scaffolds: Methods and Protocols*, Methods in Molecular Biology**, Ch. 16, vol. 1316, P. 195-210 (2015).**

(ii). S.P. Srivastava and **Anil Kumar, Kinetics and mechanism of Ag^+ - catalysed oxidation of diols with terminal hydroxyl groups by peroxydisulphate ion**, M. Tsutsui (ed.)**,** Fundamental Research in Homogeneous Catalysis, Plenum Publishing Co., New York, **Vol. 3, 373-396 (1979).**

Conferences/ Workshops/Seminars - 64 **(Abstract)**

Experience as Research Supervisor:

Thesis/Project	**Supervised**	**Submitted**	**In Progress**
Ph.D.	**18**	**-**	**5**
M.Phil./M.Tech.	**21**	-	**-**
M.Sc.	**29**	**-**	**1**

Research Project in Progress:

(i). Synthesis of Biotemplated Colloidal Nanostructures of Iron Oxide(s) - Analysis of Correlation between their Morphologies and Properties, sanctioned by **CSIR**, New Delhi, **July 2014** – Contd.

Research Projects Completed:

(i) Synthesis of Nanohybrids of Colloidal Semiconductor Oxides – An Analysis of their Charge Dynamics, Electronic and Magnetic Properties, **CSIR**, New Delhi, since **August 2008 – August 2011**.

(ii) Synthesis and Photochemistry of Composite Metal Semiconductor Nanostructured Materials, **DST**, New Delhi, **2004 – 2008**.

(iii) Analysis of Electronic Properties of Nanoclusters of Semiconductors – Development of Semiconductor Based Integrated Photocatalytic Systems, Funded by **DST**, New Delhi, **2001-2005**.

(iv) Coupled Semiconductors as Catalysts for Initiating Photochemical Reactions - Mechanistic Investigations of their Photochemical and Photophysical Behaviour. Funded by **DST**, New Delhi, **1995-1999**.

(v) Preparation of Silver (III) Species and its Stable Complexes-A Kinetic Investigtion of their Redox and Photoredox Reactivity funded by **CSIR**, New Delhi, **1995-1998**.

(vi) Optimization of photophysics of Nanosized semiconduction for their Application as Chemical Sensors funded by **UGC**, **1993**.

(vii) Catalytic Action of Semiconductor Microelectrodes in photionduced chemical Reactions funded by **DST**, New Delhi, **1989-1993**.

(viii) Photo- and Radiation Chemistry of Colloidal Semiconductors, **Hahn Meitner Institut**, Berlin, Germany, **1986-1988,** collaborated with Prof. A. Henglein.

(ix) Catalytic Role of Ag^{+} in Redox Reactions at **Radiation laboratory**, USA, **1979-82,** collaborated with Prof. P. Neta.

List of Research Papers Published in the Current Area of Research-Nanochemistry

S. No.	**Detailed of Published Paper**	**Impact Factor**
1.	**Anil Kumar** and Komal Gupta RNA-mediated fluorescent colloidal CdSe nanostructures in aqueous medium - analysis of Cd^{2+} induced folding of RNA associated with morphological transformation (0D to 1D)), change in photophysics and selective Hg^{2+} sensing. **J. Mater. Chem. (A), 5, 6146-6163 (2017).**	**8.262**
2.	S. Firdoz and **Anil Kumar** ZnO nanoparticles and their acarbose-capped nanohybrids as inhibitors for human salivary amylase. **IET Nanobiotechnol., doi: 10.1049/iet-nbt.2016.0115 (2016).**	**1.541**
3.	M. Kaloti and **Anil Kumar** Synthesis of Chitosan-Mediated Silver Coated γ-Fe_2O_3 (Ag-γ-Fe_2O_3@Cs) Superparamagnetic Binary Nanohybrids for Multifunctional Applications **J. Phys. Chem. C 120, 17627-17644 (2016).**	**4.509**
4.	M. Khandelwal and **Anil Kumar** One-pot environmental friendly amino acid mediated synthesis of N-doped graphene-silver nanocomposites with enhanced multifunctional behavior **Dalton Trans.,45, 5180-5195 (2016).**	**4.177**
5.	M. Khandelwal and **Anil Kumar** One-step chemically controlled wet synthesis of graphene nanoribbons from graphene oxide for high performance supercapacitor applications **J. Mater. Chem. (A), 3, 22975-22988 (2015).**	**8.262**
6.	M. Kaloti, **Anil Kumar** and N.K. Navani Synthesis of glucose-mediated Ag - γ-Fe_2O_3 multifunctional nanocomposites in aqueous medium - a kinetic analysis of their catalytic activity for 4-nitrophenol reduction. **Green Chem. 17, 4786-4799 (2015).**	**8.506**

7.	Umesh Kumar Gaur, **Anil Kumar** and G D Varma Fe-induced morphological transformation of 1-D CuO nanochains to porous nanofibers with enhanced optical, magnetic and ferroelectric properties. **J. Mater. Chem. C, 3, 4297- 4307 (2015).**	**5.066**
7.	**Anil Kumar,** B.Singh and K. Gupta Photophysical aspects of varying Zn^{2+}/ PbSe nanostructures mediated by RNA leading to the formation of honeycomb-like novel porous morphology. **J. Phys. Chem. (C), 119, 6314-6323 (2015)**.	**4.509**
8.	**Anil Kumar** and S. K. Gupta Supramolecular–directed novel superparamagnetic 5'-adenosine monophosphate templated β-FeOOH hydrogel with enhanced multi-functional properties. **Green Chem., 17, 2524–2537 (2015).**	**8.506**
9.	**Anil Kumar** and M. Khandelwal A novel synthesis of ultra thin graphene sheets for energy storage applications using malonic acid as a reducing agent. **J. Mater. Chem. (A), A, 2014, 2, 20345–20357 (2014).**	**8.262**
10.	**Anil Kumar** and S.K. Gupta 5'-guanosine monophosphate mediated biocompatible porous hydrogel of β-FeOOH - Viscoelastic behavior, loading and release capabilities of freeze dried gel. **J. Phys. Chem. (B), 118, 10543-10551 (2014)**.	**3.187**
11.	**Anil Kumar** and V. Kumar Biotemplated inorganic nanostructures: Supramolecular directed nanosystems of semiconductor(s)/metal(s) mediated by nucleic acids and their properties. **Chem. Rev. (ACS), 114, 7044-7078 (2014).**	**37.369**
12.	**Anil Kumar** and M. Khandelwal Amino acid mediated functionalization and reduction of graphene oxide – synthesis and theformation mechanism of nitrogen-doped graphene**.** **New J. Chem., 38, 3457-3467 (2014).**	**3.086**
13.	U. K. Gaur, **Anil Kumar** andG. D. Varma The synthesis of self-assembled 1-D CuO nanochains in aqueous medium and a study of their multifunctional features. **CrystEngComm (RSC), 16, 3005–3014 (2014).**	**3.849**
14.	**Anil Kumar** and and S.K. Gupta Synthesis of 5'-GMP-mediated porous hydrogel containing β - FeOOH nanostructures: optimization of its morphology, optical and magnetic properties. **J. Mater. Chem. (B), 1, 5818-5830 (2013).**	**4.872**

15.	**Anil Kumar** and B. Singh Optoelectronic properties of dual emitting RNA mediated colloidal PbSe nanostructures. **Dalton Trans., 42, 11455–11464 (2013)**.	**4.177**
16.	**Anil Kumar** and S.K. Gupta Synthesis of adenine mediated superparamagnetic colloidal β-FeOOH Nanostructure(s) – study of their morphological changes and magnetic behavior. **J. Nanopart. Res. 15:1466, 1-16 (2013) (DOI 10.1007/s11051-013-1466-z).**	**2.278**
17.	**Anil Kumar** and B. Singh Zn^{2+} induced folding of RNA to produce honeycomb like RNA - mediated fluorescing Zn^{2+}/PbSe nanostructures. **J. Phys. Chem. (C), 117, 5386–5396** (**2013**).	**4.509**
18.	**Anil Kumar,** V. Chaudhary and Vinit Kumar Synthesis of guanosine 5′-monophosphate (GMP) - mediated Ag/CdS nanohybrids – their self assembly and optoelectronic properties. **Eur. J. Inorg. Chem. 269-279 (2013).**	**2.942**
19.	**Anil Kumar** and B. Singh RNA templated water soluble Mg^{2+}/ PbSe porous nanostructures with dual Fuorescence. **RSC Advances, 2, 9079–9090(2012).**	**3.289**
20.	**Anil Kumar** and B. Singh Synthesis and photophysics of red emitting RNA templatedPbSe nanostructures. **Chem. Commun., 47 (14), 4144 - 4146 (2011).**	**6.567**
21.	**Anil Kumar** and A. Singhal Optical, photophysical and magnetic behavior of GMP-templated binary (β - Fe_2O_3/CdS) and ternary (β-Fe_2O_3/Ag/CdS) nanohybrids. **J. Mater. Chem., 21, 481-496 (2011).**	**6.101 (old)**
22.	S. Firdoz, Ma Fang, XiuliYue, Zhifei Dai, **Anil Kumar**, Jiangbin A novel amperometric biosensor based on single walled carbon nanotubes with acetylcholine esterase for the detection of carbaryl pesticide in water. **Talanta, 83, 269 - 273 (2010).**	**4.035**
23.	**Anil Kumar** and V. Kumar Synthesis and optical properties of Guanosine 5′-monophosphate - mediated CdS nanostructures: An analysis of their structure, morphology and electronic properties. **Inorg. Chem., 48, 11032-11038 (2009).**	**4.820**
24.	**Anil Kumar,** A. Jakhmola and V. Chaudhary Synthesis and photophysics of colloidal ZnS/PbS/ZnS nanocomposites - an analysis of dynamics of charge carriers. **J. Photochem. Photobiol. A: Chem. 208, 195-202 (2009).**	**2.477**
25.	**Anil Kumar** and V. Kumar	**6.567**

	Supramolecular – directed synthesis of RNA-mediated CdS/ZnS nanotubes. **Chem. Commun., 5433-5435 (2009).**	
26.	**Anil Kumar** and A. Singhal Synthesis of colloidal silver iron oxide nanoparticles – study of their optical and magnetic behavior. **Nanotechnology, 20, 295606-295616 (2009).**	**3.573**
27.	**Anil Kumar** and A. Jakhmola RNA-templated fluorescent Zn/PbS (PbS + Zn^{2+}) supernanostructures. **J. Phys. Chem. (C), 113, 9553-9559 (2009).**	**4.509**
28.	**Anil Kumar** and V. Chaudhary Time resolved emission studies of Ag-adenine-templatedCdS (Ag/CdS) nanohybrids. **Nanotechnology, 20, 095703 - 095712 (2009).**	**3.573**
29.	**Anil Kumar** and V. Kumar Self assemblies from RNA-templated colloidal CdS nanostructures. **J. Phys. Chem. (C), 112, 3633-3640 (2008).**	**4.509**
30.	**Anil Kumar** and A. Singhal Synthesis of colloidal β-Fe_2O_3 nanostructures - influence of addition of Co^{2+} on their morphology and magnetic behavior. **Nanotechnology, 18, 475703 (2007).**	**3.573**
31.	**Anil Kumar** and V. Chaudhary Optical and photophysical properties of Ag/CdS nanocomposites – an analysis of relaxation of charge carries. **J. Photochem. Photobiol. A: Chem. 189, 272-279 (2007).**	**2.477**
32.	**Anil Kumar** and A. Jakhmola RNA – mediated fluorescent Q-PbS nanoparticles. **Langmuir (Lett.) 23, 2915-2918 (2007).**	**3.993**
33.	**Anil Kumar** and N. Mathur Photocatalytic degradation of aniline at the interface of TiO_2 suspensions containing carbonate ions. **J. Colloid Interface Sci. 300, 244-252 (2006).**	**3.368**
34.	**Anil Kumar** and A. Jakhmola Photophysics and charge dynamics of Q-PbS based mixed ZnS/PbS and PbS/ZnS semiconductor nanoparticles. **J. Colloid Interface Sci. 297, 607-617 (2006).**	**3.782**
35.	**Anil Kumar** Physicochemical and photochemical properties of nanoscale semiconductors - dynamics of the charge carriers. **Natl. Acad. Sci. Lett, 28, 1-11 (2005). (Published as Lead Article)**	**0.345**
36.	**Anil Kumar** and N. Mathur Photocatalytic oxidation of aniline using Ag^{+}-loaded TiO_2 suspensions. **Appl. Catal. A: Gen. 275,189-197 (2004).**	**4.012**

37.	**Anil Kumar** and S. Mital Electronic and photocatalytic properties of purine(s)-capped Q-CdS nanoparticles in the presence of tryptophol. **J. Mol. Catal. A: Chem. 219, 65-71 (2004).**	**3.958**
38.	**Anil Kumar** and S. Mital Synthesis and photophysics of 6-dimethylaminopurine-capped Q-CdS nanoparticles – astudy of its photocatalytic behavior. **Int. J. Photoenerg. 6(2), 61-68 (2004).**	**1.226**
39.	**Anil Kumar** and S. Mital Photophysics and photocatalytic behavior of composite CdS-purine nanoparticles in the presence of certain indoles. **J.Colloid Interface Sci. 265, 432-438 (2003).**	**3.782**
40.	**Anil Kumar** and A.K. Jain Photophysics and photocatalytic properties of Ag^{+} - doped composite (CdS-TiO_2) colloidal semiconductor. **J. Photochem. Photobiol. A: Chem. 156, 207-218 (2003).**	**2.477**
41.	**Anil Kumar** and S. Mital Synthesis and photophysics of purine-capped Q-CdSnanocrystallites. **Photochem. Photobiol. Sci. 1, 737-741 (2002).**	**2.267**
42.	**Anil Kumar** and S. Mital Electronic properties of Q-CdS clusters stabilized by adenine. **J.Colloid Interface Sci. 240, 459-466 (2001).**	**3.782**
43.	**Anil Kumar** and D.P.S. Negi Photophysics and photocatalytic properties of $Cd(OH)_2$ -coated Q-CdS clusters in the presence of guanine and related compounds. **J. Colloid Interface Sci. 238, 310-317 (2001).**	**3.782**
44.	**Anil Kumar** and A. K. Jain Photophysics and photochemistry of colloidal CdS-TiO_2 coupled semiconductors - Photocatalytic oxidation of indole. **J. Mol. Catal. A: Chem. 165, 267-275 (2001).**	**3.958**
45.	**Anil Kumar** and D.P.S. Negi Photocatalytic and photophysical behaviours of $Cd(OH)_2$ - coated Q-CdS in the presence of tryptophan. **J. Photochem. Photobiol. A: Chem., 134, 199-207 (2000).**	**2.477**
46.	**Anil Kumar** and A. Kumari Photocatalytic oxidative C-C bond cleavage of 1,2-ethanediol initiated by aqueous titanium dioxide dispersion - influence of Ag^{+} on the catalytic activity. **Res. Chem. Intermed. 25, 695-708 (1999).**	**1.833**
47.	**Anil Kumar** and S. Kumar Colloidal CdS induced photocatalytic reaction of 2-methylindole - mechanistic analysis of oxidation of indoles. **J. Phys. Org. Chem. 11, 277-282 (1998).**	**1.515**
48.	**Anil Kumar,** S. Kumar and D.P.S. Negi	***Old RSC Journal***

	Photocatalytic oxidative C-C bond cleavage of the pyrrole ring in 3-methylindole induced by colloidal CdS particles. **J. Chem. Res. (S), 1, 54-55 (1998).**	
49.	**Anil Kumar** and A. Kumar Catalytic effect of Ag^{+} in colloidal CdS- induced photooxidation of aniline. **Chem. Lett. (8), 711-712 (1996).**	**1.23**
50.	**Anil Kumar** and S. Kumar Enhancement of luminescence of CdS in presence of indoles - study of CdS - sensitized reaction of indole. **J. Photochem. Photobiol. A: Chem., 83, 251-256 (1994).**	**2.477**
51.	**Anil Kumar** and S. Kumar Photoluminescence of colloidal cadmium sulfide in the presence of aniline - study of the CdS - sensistizedphotocataytic reaction. **J. Photochem. Photobiol. A: Chem. 69, 91-95 (1992).**	**2.477**
52.	**Anil Kumar** Photoinduced processes in colloidal semiconductors – physicochemical properties and applications. **Bull. Indian Soc. Rad. and Photochem. Sci. 3(1), 2-5 (1992).**	**-**
53.	**Anil Kumar,** A. Hengleinand H. Weller Photochemistry and radiation chemistry of semiconductor colloids - preparation of colloidal PbO_2 and various electron transfer processes. **J. Phys. Chem. 93, 2262-2266 (1989).**	**ACS Journal (old)**
54.	**Anil Kumar,** E. Janata and A. Henglein Photochemistry of colloidal semiconductors - quenching of CdS fluorescence by excess positive holes. **J. Phys. Chem. 92, 2587-2591 (1988).**	**ACS Journal (old)**
55.	A. Henglein, **Anil Kumar,** E. Janata and H. Weller Photochemistry and radiation chemistry of semiconductor colloids - reaction of the hydrated electron with CdS and non-linear optical effects. **Chem. Phys. Lett. 132, 133-136 (1986).**	**1.860**

Details of Ph.D. Theses Supervised: 18 Nos.

S.No.	Name of Student/Supervisor Year of Award	Title of Ph.D. Thesis
1.	Ms. Mandeep Kaloti **Supervisor: Dr. Anil Kumar** and Dr. N. Navani 2017-2018	Synthesis and Multifunctional Applications of Biomolecule-Mediated Ag-Fe_2O_3 Nanocomposites

2.	Ms. Mahima Khandelwal **Supervisor: Dr. Anil Kumar** and Dr. R. Nath 2016-2017	Study on Chemical Reduction of Graphene Oxide into Graphene – their Physicochemical Behavior
3.	Mr. Umesh Kumar Gaur **Supervisor:** Dr. G.D. Varma and **Dr. Anil Kumar** 2016-2017	Synthesis of Pure and Doped CuO Nanostructures and their Multifunctional Properties
4.	Dr. Sudhir Kumar Gupta **Supervisor: Dr. Anil Kumar** 2014-2015	Synthesis and Physicochemical Properties of Biotemplated β-FeOOH Nanostructures
5.	Dr. Bhupender Singh **Supervisor: Dr. Anil Kumar** 2013-2014	Synthesis and Photophysics of RNA-Mediated Colloidal PbSe Nanostructures.
6.	Dr. Aditi Singhal **Supervisor: Dr. Anil Kumar** 2010-2011	Synthesis of ß – Fe_2O_3 Based Nanostructures - Study of their optical and Magnetic Properties
7.	Dr. Vinit Kumar **Supervisor: Dr. Anil Kumar** 2010-2011	Synthesis, Optical and Electronic Properties of RNA – Mediated Colloidal CdS Nanostructures
8.	Dr. Vidhi Chaudhary **Supervisor: Dr. Anil Kumar** 2009-2010	Synthesis of Ag/CdS Nanocomposites-An Analysis of their Optical and Photophysical Behavior
9.	Dr. Anshuman Jakhmiola **Supervisor: Dr. Anil Kumar** 2007-2008	Synthesis and phtophysics of Q-PbS Based Colloidal Nanostructures
10.	Dr. Nupur Mathur **Supervisor: Dr. Anil Kumar** 2005-2006	Photocatalytic Action of Certain Anilines Mediated by Aqueous TiO_2 Suspensions
11.	Dr. Shipra Mital **Supervisor: Dr. Anil Kumar** 2003-2004	Synthesis, Photophysics and Photocatalytic Action of Surface-Capped Q-CdS Particles
12.	Dr. Priyanka Gupta **Supervisor:** Dr. R. N. Goyal **and Dr. Anil Kumar** 2001-2002	Oxidation Chemistry of Some Biologically Important N-Heterocyclic Compounds
13.	Dr. Vaishali **Supervisor: Dr. Anil Kumar** 2001-2002	Kinetics of Oxidation of Some Amines, Aminoalcohols and diols by Diperiodatoargentate (III)

14.	Dr. Arvind Kumar Jain **Supervisor: Dr. Anil Kumar** 2001-2002	Photophysics and Photocatalytic Behavior of Q-CdS-TiO_2 in the Presence of Certain Aromatics
15.	Dr. Paresh Kumar **Supervisor: Dr. Anil Kumar** and Dr. R.D. Kaushik 1998-1999	Kinetics and Mechanism of Oxidation of Certain Amino Acids by Bis (periodato) Argentate (III)
16.	Dr. Devendra Pal Singh Negi **Supervisor: Dr. Anil Kumar** 1995-1996	Photophysical and Photocatalytic Behaviors of Q-CdS in the Presence of Some Heterocycles
17.	Dr. Sanjay Kumar **Supervisor: Dr. Anil Kumar** 1995-1996	Photoluminescence of Colloidal Cadmium Sulphide Particles in the Presence of Certain Anilines and Indoles – Study of CdS Sensitized Photocatalytic Reactions
18.	Dr. Ashok Panwar **Supervisor: Dr. Anil Kumar** 1993-1994	Preparation of Tetrahydroxoargentate (III) ion and Study of Its Reactions with Certain Aromatic Amines

Other Academic Activities:

- **Presented an invited talk on, "**Chemical Strategies for Synthesis of Green Nanomaterials – Chemistry and Future Scope of Iron Oxide/Oxyhydroxide Based Nanostructures" in EMN Guangzhou Meeting-Energy Materials and Nanotechnology held at Guangzhou, China during December 3-6, 2015.

- **Delivered the plenary lecture on, '**Synthesis of Advanced Materials following Wet Chemical Route(s)' **in 9th India Japan Bilateral Conference (BICON-2014)** on Advanced Material Science and Engineering, held at Jaipur during October 12-17, 2014.

- **Presented an invited talk** on, 'Biotemplated Semiconductor/ Metal Nanostructures - their Characteristic Features and Future Prospects' **held during October 07 -09, 2013 at Las Vegas, USA on October 08, 2013** in 2nd International Conference and Exhibition on Materials Science and Engineering.
  Also presented a talk in this meeting as an Honorable Guest during the inauguration on **"**Emphasis on Interdisciplinary Science & Technological Shift, Contributing to the Development of New Materials" **on 07th October 2013.**

- **Member,** Board of Postgraduate Studies & Research, Deshbandhu Chhotu Ram University of Science & Technology, Murthal (Sonepat), Haryana, 2011-13.

- **Member,** Board of Studies, M.Tech. Program in Nanoscience and Nanotechnolgy, Dept. of Physics, Pondicherry University, Pondicherry, March 2010.

- **Chaired the Inaugural Session.** Indo-French Workshop cum International

Conference on Nanoscience & Nanotechnology, held at Ansal Institute of Technology, Gurgaon during October 12-16, 2009.

- **Chaired a Scientific Session** on 'Applications of Catalysts in Industry' in an International Symposium on Ostwald's 100 Years of Catalysis in Chemical Research, Allahabad Agricultural Institute, Allahabad held during Nov. 03 – 04, 2009.

- **Co-Chairman,** International Conference on Nanomaterials and Devices Processing and Applications (NADPA 2008) was organized during December 11-13, 2008.

- **Member of the Editing and Reviewing Team**, Nanomaterials and Devices Processing and Applications (NADPA 2008), Trans Tech Publications Inc., USA.

- **Introduced M.Tech. Course on 'Nanotechnology'** as Head, Centre of Nanotechnology, Indian Institute of Roorkee, Roorkee, 2008.

- **Member**, National Advisory Committee, Trombay Symposium or Radiation and Photochemistry (TSRP-2006; TSRP-2010, TSRP-2016), BARC, Mumbai.

- **Member,** National Organizing Committee, Recent Trends in Photochemical Science Trivandrum, January 8-10, 2001.

- **Member,** Organizing Committee of the Conference, Recent Trends in Industrial Methods of Analysis, Roorkee, September, 1997.

- **Delivered invited talks and made oral presentations** in several premier institutions (BARC, IITs, IISc and other Universities/Institutions) of India and Abroad, and Chaired several scientific sessions.

Conference(s) Organized:

- **Convener,** International Conference on, "Advanced Materials for Energy, Environment and Health", **Indian Institute of Technology Roorkee**, Roorkee, **March 04-07, 2016**.

- **Co-Chairman,** International Conference on, "Nanomaterials and Devices Processing and Applications" (**NADPA 2008**), **Indian Institute of Technology Roorkee**, Roorkee, December 11-13, 2008.

- **Convener,** Local Organizing Committee and Member, National Organizing Committee, National Symposium on Radiation and Photochemistry, ISRAPS, **Univ. of Roorkee, Roorkee,** February 21-23, 2001.

List of Publications: (In descending order of publication year)

1. **Anil Kumar** and Komal Gupta
   RNA-mediated fluorescent colloidal CdSe nanostructures in aqueous medium - analysis of Cd^{2+} induced folding of RNA associated with morphological transformation (0D to 1D)), change in photophysics and selective Hg^{2+} sensing.
   J. Mater. Chem. (A), 5, 6146-6163 (2017).
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Other Administrative Experience for Different Institute Activities:

- **Chairman,** Institute Technical Committee, IIT Roorkee, 2016 – contd.
- **Vice-President,** A.B.N. Senior Secondary School, IIT Roorkee Campus 2013-2015.
- **Member,** Professorial Committee, ***Metallurgical and Materials Engineering Department***, 2012-2014.; ***Institute Instrumentation Centre***, 2008-2012.
- **Chief Advisor,** ***Students Club***, 2006 – 2009.
- **Member,** ***Strategic Planning Group***, 2005-2006.
- **Convener,** Purchase & Finance Committee, Central Library, IIT Roorkee during 2004-2006.
- **Member,** Library Advisory Committee, 2004-2006.
- **Chief Advisor,** THOMSO, 2004.
- **Advisor,** Alaknanda Club, IIT Roorkee during 2002-2006.
- **Chief Warden,** Ganga Bhawan, IIT Roorkee during 2002-2006.