

**Bhabha Atomic Research Centre
Radiation & Photochemistry Division
2006**

Journals (Published)

1. Ultrafast Relaxation Dynamics of the Excited States of Michler's Thione
Jahur A. Mondal, Hirendra N. Ghosh, T. Mukherjee and Dipak K. Palit
J. Phys. Chem. A, 110 (2006) 12103-12112.
2. Twisting Dynamics in the Excited Singlet State of Michler's Ketone
Jahur A. Mondal, H. N. Ghosh, T. K. Ghanty, T. Mukherjee and D. K. Palit
J. Phys. Chem. A, 110 (2006) 3432-3446.
3. Effect of pH on the one-electron oxidation chemistry of organoselenium compounds in aqueous solutions
B. Mishra, K. I. Priyadarsini, and H. Mohan
J. Phys. Chem. A. 110 (2006) 1894-1900.
4. Surface-enhanced resonance Raman scattering and density functional calculations of hemicyanine adsorbed on colloidal silver surface
N. Biswas, S. Thomas, S. Kapoor, A. Mishra, S. Wategaonkar, S. Venkateswaran and T. Mukherjee
J. Phys. Chem.. A 110 (2006) 1805-1811.
5. Microenvironment in the corona region of tri-block copolymer micelles: Temperature dependent solvation and rotational relaxation dynamics of coumarin dyes
M. Kumbhakar, T. Goel, S. Nath, T. Mukherjee and H. Pal
J. Phys. Chem. B. 110 (2006) 25646-25655.
6. Interfacial Electron Transfer between Photo-excited Porphyrin molecule and TiO₂ Nanoparticles: Effect of Catecholate Binding
G. Ramakrishna, S. Verma, D. Amilan Jose, D. Krishna Kumar, A. Das, D.K. Palit and H.N. Ghosh
J. Phys. Chem. B 110 (2006) 9012-9021.
7. Ultrafast dynamics and excited state deactivation of [Ru(bpy)₂Sq]⁺ and its derivatives
G. Ramakrishna, A. D. Jose, D. Krishna Kumar, A. Das, D.K. Palit, and H.N. Ghosh
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8. Host-guest complexation of neutral red with macrocyclic host molecules: Contrasting pK_a shifts and binding affinities for cucurbit[7]uril and β-cyclodextrin.
J. Mohanty, A.C. Bhasikuttan, W.M. Nau and H. Pal
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9. Hyperthermal reactions of O and O₂ with a hydrocarbon surface: Direct C-C bond breakage by O and H-atom abstraction by O₂
Jianming Zhang, H.P. Upadhyaya, Amy L. Brunsvold and T.K. Minton
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10. High-resolution Raman spectra with femtosecond pulses: An example of combined time- and frequency-domain spectroscopy
S. Nath, D. C. Urbanek, S. J. Kern and M. A. Berg
Phys. Rev. Lett. 97 (2006) 267401.
11. Microhydration shell structure in $\text{Cl}_2^{\bullet-} \cdot n\text{H}_2\text{O}$ clusters: A theoretical study,
A. K. Pathak, T. Mukherjee, and D. K. Maity,
J. Chem. Phys. 124 (2006) 074309.
12. A comparative ab initio study of Br_2^{\bullet} and Br_2 water clusters
A. K. Pathak, T. Mukherjee and D. K. Maity
J. Chem. Phys. 124 (2006) 024322.
13. Polyene photoisomerization rates: Are they distinct in aqueous block copolymer micelles solutions and gels?
K.S. Mali, G.B. Dutt, and T. Mukherjee
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14. Dynamics of OH radical generation in laser induced photodissociation of tetrahydropyran at 193 nm
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15. Radiolytic reduction of Fe(II) in 2-propanol,
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16. Detection of OH on photolysis of styrene oxide at 193 nm in gas phase
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18. Photoisomerization of a carbocyanine derivative in reverse phases of a block copolymer: Evidence for the existence of water droplets,
K. S. Mali, G. B. Dutt, and T. Mukherjee,
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19. Laser enrichment of light and middle mass isotopes: Prospects and challenges
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20. Effect of temperature on the dynamics of electron transfer in heterogeneous medium: evidence for apparent Marcus inversion.
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22. Solvent polarity and intramolecular hydrogen bonding effects on the photophysical properties of 1-amino-9,10-anthraquinone dye.
P. Dahiya, M. Kumbhakar, D.K. Maity, T. Mukherjee, A.B.R. Tripathi, N. Chattopadhyay and H. Pal
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24. Kinetic and spectral studies on transient species formed in pulse radiolysis of 2,6-diacetylpyridine in aqueous solutions
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25. Carbonate radical anion-induced electron transfer in bovine serum albumin,
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26. Pulse radiolysis studies of mangiferin: A C-glycosyl xanthone isolated from *Mangifera indica*
B. Mishra, K. I. Priyadarsini, M. Sudheerkumar, M. K. Unnikrishnan, and H. Mohan
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27. Reactive oxygen and nitrogen species (RONS) scavenging reactions of o-vanillin: pulse radiolysis and stopped-flow studies
A. Barik, K. I. Priyadarsini and Hari Mohan
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28. Spectroscopic properties of anion radicals studied using pulse radiolysis,
Vaishali Samant, Ajay K. Singh, Tulsi Mukherjee and Dipak K. Palit,
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29. Scavenging of reactive oxygen radicals by resveratrol: antioxidant effect.-
H.S. Mahal and T. Mukherjee
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30. Radical scavenging reactions of chlorogenic acid: a pulse radiolysis study
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31. Nature of the transient species formed in pulse radiolysis of n-allylthiourea in aqueous solutions
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32. Synthesis of Au, Au/Ag, Au/Pt and Au/Pd nanoparticles using the microwave-polyol method
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33. Photophysical characteristics and density functional theory calculations of indole 2-carboxylic acid in the presence of mercurous ions
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34. Methane generated during photocatalytic redox reaction of alcohols on TiO₂ suspension in aqueous solutions.
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35. Effect of the amino and hydroxy substituents on the photophysical properties of 1,4-disubstituted 9,10-anthraquinone dyes.
P. Dahiya, M. Kumbhakar, T. Mukherjee, and H. Pal,
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S. R. Venkatachalam, A. Salaskar, A. Chattopadhyay A. Barik, B. Mishra, R. Gangabhadgirathi and K. I. Priyadarsini,
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37. Identification and evaluation of antioxidant, analgesic/anti-inflammatory activity of the most activity ninhydrin-phenol adducts synthesized,
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41. Protection against radiation oxidative damage in mice by Triphala,
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Mut. Res. 609 (2006) 17-25

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G.R. Dey, R. Ganguli and T.N. Das,
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44. Gas-phase and on-surface chemical reduction of CO₂ to HCHO and CO under dielectric barrier discharge
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G. Venkateswarlu, A.C. Sahayam, S.C. Chaurasia and T. Mukherjee
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50. Macro micro separation of selenium and tellurium: Application to NAA
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S.H. Shinde and T. Mukherjee
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56. Possible binding sites for biotin stabilized water soluble Ag nanoparticles: An experimental and theoretical study
Shweta Hegde, Sudhir Kapoor, Sergej, Naumove, Satyawati Joshi and T. Mukherjee
J. Nanoscience and Nanotechnology 6 (2006) 1-7
57. Effect of ethylene glycol-bis(2-aminoethylether)-N,N,N',N'-tetraacetic acid (EGTA) on the growth, stabilization and morphology of silver nanoparticles
Shweta Hegde, Sudhir Kapoor, Satyawati Joshi and Tulsii Mukherjee
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1. Structure, energy and IR spectra of $I_2^{\bullet-} \cdot nH_2O$ clusters (n=1-8): A theoretical study
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3. Interaction of curcumin with human serum albumin: Thermodynamic properties, Fluorescence energy transfer and Denaturation effects
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4. Methane generated during photocatalytic redox reaction of alcohols on TiO₂ suspension in aqueous solutions
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5. Radical scavenging reactions of chlorogenic acid : a pulse radiolysis study
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6. Photophysical characteristics and density functional theory calculations of indole-2-carboxylic acid in the presence of mercurous ions
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8. Phytic acid complexing effect on the reduction process of silver ions: A pulse radiolysis study.
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9. Photophysical properties of 1-N-methylamino- and 1-N,N-dimethylamino- 9,10-anthraquinone dyes: a comparison with 1-amino-9,10-anthraquinone dye.
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V. K. Parihar, K. R. Prabhakar, V. P. Veerapur, K. I. Priyadarsini, M. K. Unnikrishnan and C. M. Rao
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12. Comparative study of copper(II)-curcumin complexes as superoxide dismutase mimics and free radical scavengers
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13. Rotational diffusion of an ionic solute in polymorphic environments of a block copolymer: Influence of interfacial friction on solute rotation
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S.C. Chaurasia, A.C. Sahayam, R.K. Mishra, G. Venkateswarlu and T. Mukherjee
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15. Speciation of Cr(III) and Cr(VI) in Seawater after separation with a sulphate form of Dowex-1 and ETAAS determination
A. Aparna, M. Sumithra, G. Venkateswarlu, A.C. Sahayam, S.C. Chaurasia and T. Mukherjee
Atomic Spectroscopy
16. Role of ion exchange in permeation processes
Jayshree Ramkumar, Tulsi Mukherjee
Talanta
17. Effect of strong coupling on interfacial electron transfer dynamics in dye-sensitized TiO₂ semiconductor nanoparticles
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J. Chem. Sci.
18. Antioxidant and radioprotective effect of the active fraction of *Pilea microphylla* (L.) ethanolic extract
K.R. Prabhakar, V.P. Veerapur, P. Bansal, V. K. Parihar, M. R. Kandadi, P. Bhagath Kumar, K.I. Priyadarsini and M.K. Unnikrishnan
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19. In vitro studies on the binding, Antioxidant, and cytotoxic actions of Punicalagin"
A.P. Kulkarni, H.S. Mahal, S. Kapoor, S.M. Aradhya
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20. Antioxidant activity of some phenolic constituents from green pepper (*Piper nigrum* L.) and fresh nutmeg mace (*Myristica fragrans*)
S. Chatterjee, N. Zareena, S. Gautam, S. Adhikari, S. V. Prasad and A. Sharma
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21. In vitro studies on antiradical and antioxidant activities of fenugreek (*Trigonella foenum graceum*) seeds,
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22. Spectrum control in femtosecond time-resolved spectroscopy
J. Konradi, A. Scaria, A. K. Singh, and A. Materny
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23. Physico-chemical studies on the evaluation of antioxidant activity of herbal extracts and active principles of some Indian medicinal plants
S. Adhikari, K. I. Priyadarsini and T. Mukherjee.
J. Clinical Biochem. and Nutri.

- 24 Synthesis of thiophenoacetyl-1, 4-benzoquinones
P. Khatri, I. Abraham, P. Pardasani, R.T. Pardasani and T. Mukherjee
Heterocyclic Commun.
- 25 New ICT probes: Synthesis and photophysical studies of N-phenyl aza-15-crown-5 aryl/heteroaryl oxadiazoles under acidic condition and in the presence of selected metal ions.
S. H. Mashraqui, S. Sundarama and A. C. Bhasikuttan
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- 26 Novel fluoroinophores incorporating diaryl-1,3,4-oxadiazole and aza-crown ring. Potentially sensitive Mg^{2+} ion sensor.
S. H. Mashraqui, S. Sundarama, A. C. Bhasikuttan, S. Kapoor and A. V. Sapre
Sensors and Actuators B
- 27 Hydration of uranyl cations : A critical study on the effective fragment potential approach
K.R.S. Chandrakumar, T.K. Ghanty, S.K. Ghosh and T. Mukherjee
J. Mol. Struc. THEOCHEM

JOURNALS (Communicated)

- 1 Rotational Diffusion of Organic Solutes in Surfactant-Block Copolymer Micelles: Role of Electrostatic Interactions and Micellar Hydration
K. S. Mali, G. B Dutt, and T. Mukherjee,
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- 2 Phenol and Catechol as New Class of Receptors for F^- in Colorimetric Sensors Derived from Ru(II)-polypyridyl-based Chromophore: A combined Experimental and TD-DFT Computational Studies.
D. A. Jose, P. Kar, D. Koley, B. Ganguly, W. Thiel, G. Ramakrishna, D. K. Palit A. Das and H. N. Ghosh
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- 3 Physicochemical and Photophysical studies on porphyrin-based donor-acceptor systems: Effect of redox potentials on ultrafast electron transfer dynamics
D.A. Jose, A.D. Shukla, A. Das, G. Ramakrishna, D.K. Palit and H.N. Ghosh
J. Phys. Chem. B
- 4 Generation of different products on photocatalytic reaction on TiO_2 Suspension in Aqueous Solutions with and without a hole scavenger at diverse ambient conditions,
G.R. Dey and K.K. Pushpa,
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- 5 Gamma radiolytic product yields in aqueous azide solutions,
G.R. Dey,
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- 6 High quantum yield blue light emitting ultrasmall TiO_2
S. Kaniyankandy and H.N. Ghosh
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- 7 IR Spectra of Small Carbonate-Water Clusters, $\text{CO}_3^{-2}(\text{H}_2\text{O})_n$: A Theoretical Study
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- 8 Generation and characterization of silver nanoparticles in condensed media: An
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- 9 Efficient fluorescence enhancement and cooperative binding of an organic dye in a
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M.C. Rath, D.K. Palit, T. Mukherjee and H.N. Ghosh
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- 11 Solvent polarity induced conformational changes in 2,6-diamino-9,10-anthraquinone
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P. Dahiya, S. Dutta Choudhury, D. K. Maity, T. Mukherjee and H. Pal
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- 12 CTAB assisted Au and Pd nanoparticles
Anjali A. Athawale, Manmohan Kumar and Megha Majumdar
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Books / Monograph

- 1 Resonance ionization spectroscopy of Heavy elements
P.N. Bajaj
Recent Developments in Spectroscopy o Lanthanides and Actinides, 2006
Editor: B.N. Jagtap and A. Venugopalan
- 2 Spectrum Control in Femtosecond Time-Resolved Spectroscopy
J. Konradi, A. Scaria, A.K. Singh & A. Materny
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- 1 Singlet oxygen: photosensitized generation, detection and reaction with organic
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A. Barik, K. I. Priyadarsini, Harimohan, P. N. Bajaj, A. V. Sapre, J. P. Mittal and T.
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BARC Report 2006/E/020
- 2 Synthesis of deuterated polyethylene
Manmohan Kumar, M.S. Panajkar and P.N. Bajaj
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- 3 Evidence for antioxidant activity and functional moiety of non-steroidal anti inflammatory drug sulfasalazine.
Ravi Joshi and T. Mukherjee.
BARC Newsletter 273 (2006) 36-42
- 4 Role of surface states of semiconductor nanomaterials in interfacial electron transfer dynamics and effect o surface modification
H.N. Ghosh
BARC News Letter, Issue No.273 (2006) 25-35
- 5 One-electron reduction of pyrroloquinoline quinone (PQQ), in aqueous solutions: A pulse radiolysis study
A. Barik, K. I. Priyadarsini, H. S. Misra and Hari Mohan
BARC Newsletter, Issue No 273 (2006) 268-273
- 6 Formation of redox active nanoselenium on reactions of oxidizing free radicals with selenourea
B. Mishra, K. Indira Priyadarsini, P. A.Hassan and Hari Mohan
BARC Newsletter, Issue No 273 (2006) 262-267
- 7 Antioxidant properties of a novel marine analogue of dendrodione
Strayo De, T.P.A. Devasagayam, S. Adhikari, V.P. Menon
BARC News letter 273 (2006) 123-133
- 8 Coherent Control of Molecular Dynamics with Shaped Femtosecond Laser Pulses
Ajay K. Singh and Sisir K. Sarkar
KIRAN, 17 (2006) 18-22
- 9 Aggregation of fullerenes C₆₀ and C₇₀ in solution.
S. Nath, H. Pal and A. V. Sapre
ISRAPS Bulletin, Vol. 18 (2006) 30-33
- 10 Molecular Engineering in Dye-Sensitized Solar Cell
H.N. Ghosh
ISRAPS Bulletin, Vol.18 Issue 3&4 (2006) 9-14
- 11 Selenium nanoparticles and their free radical scavenging activity
K. Indira Priyadarsini, B. Mishra, P. A. Hassan
ISRAPS Bulletin, Vol 18 (2006) 15-20
- 12 Strongly coupled Ruthenium-poly pyridyl complexes for Efficient Electron Injection in Dye-sensitized Semiconductor Nanoparticles
G. Ramakrishna, D.A. Jose, D.K. Kumar, A. Das, D.K. Palit and H.N. Ghosh
CSIR News Vol. 56, No. 14, 30 July, 2006

Invited Talks

1. Application of radiation for societal benefits : Radiopharmaceuticals
T. Mukherjee
Annamalai University, April 1, 2006
2. Application of radiation for societal benefits : Nuclear Medicine and Hydrogels

- T. Mukherjee
Annamalai University, April 1, 2006
3. Fundamental advances in radiation research: global scenario
T. Mukherjee
Osaka University, Japan, May 16, 2006
 4. Current status of photophysics research in BARC : Ultrafast dynamics and fluorescence spectroscopy
T. Mukherjee
Osaka Prefecture University, Japan, May 22, 2006
 5. Current status of radiation chemistry research in India : Drugs and Antioxidants
T. Mukherjee
Osaka University, Japan, May 23, 2006.
 6. Radiation research in BARC, India : Recent results in antioxidant research
T. Mukherjee
Waseda University, Japan, May 31, 2006.
 7. Pulsed accelerator in radiation research : antioxidants and drugs
T. Mukherjee
Tokyo University, Japan, June 1, 2006
 8. Photo- and radiation chemical research at Bhabha Atomic Research Centre with special reference to application of spectroscopy in nanoparticle research
T. Mukherjee
Advanced Institute of Scientific Research, Tsukuba, Japan, June 2, 2006
 9. Radiation-induced metal nanoparticles : application of spectroscopic techniques
T. Mukherjee
Osaka University, Japan, June 12, 2006
 10. Science & Engineering of laser interaction with matter
S.K.Sarkar
University of Bremen, Germany during June 20, 2006.
 11. Laser chemistry & isotope separation
S.K.Sarkar
Max-Planck Institute fur Quanten Optik, Germany during June 22, 2006.
 12. Free Electron Lasers in nuclear fuel cycle
S.K.Sarkar
Indo-French Workshop on 'Free Electron Lasers and Applications', Goa, March 20-25, 2006.
 13. Radiation Chemical Route for Preparation of Metal Nanoparticles
T. Mukherjee,
Asia Pacific Symposium on Radiation Chemistry (APSRC) held in Shanghai Institute of Applied Physics (SINAP), Jiading, Shanghai, China, 17-21, September 2006
 14. Highly-Acidic Aqueous Solution as a Medium For Radiation Chemical Studies: Redox Chemistry of Phenol

- T. N. Das
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15. Pulse radiolysis studies on pyridine derivatives: Adduct formation in the reaction with organic reducing radicals
D. B. Naik
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 16. Dynamics of electron transfer and hydrogen bonds,
Dipak K. Palit,
IIT Bombay, Oct 9, 2006.
 17. Dynamics of pump-probe spectroscopy with tunable probe in the visible, ir and far-ir region to study ultrafast chemical reaction dynamics,
Dipak K. Palit,
PTLUPA-6 held in IIT Chennai, Dec. 21-22, 2006.
 18. Coherent Control of Molecular Dynamics with Shaped Femtosecond Laser pulses,
A. K. Singh,
National Laser Symposium (NLS-6), December 5-8, 2006, RRCAT, Indore
 19. Studies on free radical kinetics of plants and herbal extracts- correlation with antioxidant activity and radioprotection
K. I. Priyadarsini
National Academy of Sciences, India Platinum Jubilee Symposium on "Science and Technology in the Service of Society", Indian Institute of Technology, Mumbai, 6-8 October 2006.
 20. Free Radical reactions, Antioxidant and SOD activity of curcumin and its derivatives,
K. Indira Priyadarsini,
College of Pharmaceutical sciences, Manipal, March 2006.
 21. Interaction of curcumin with human serum albumin and its use in drug delivery:
A photophysical study,
Atanu Barik,
Pune University Workshop on Radiation and Photochemistry (PUWORP), 10-11 January 2006.
 22. Ultrafast ChargeTransfer Dynamics in the Excited State of Donor-Acceptor, (D-sp-A) type Molecule
Jahur Alam Mondal,
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 23. Free radical studies of some important organoselenium compounds,
Beena Mishra,
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 24. Kinetics and mechanism of free radical scavenging reactions of drug compounds, Ravi Joshi,
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 25. Enhanced antioxidant potential of copper(II) metal chelates of curcumin,
Amit Kunwar,

- International conference on Free Radicals & Antioxidants in Health, Disease & Radiation, January 15-18, 2006, SFRR India. Kolkata
26. Host-Guest Complexation of Rhodamine 6G and Neutral Red with Cucurbituril: Effects on the Photophysical Properties.
J. Mohanty
TSRP-2006, Mumbai.
 27. Ultrafast relaxation dynamics in Michler's ketone
Jahur Alam Mondal,
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 28. Aqueous Medium Phenoxyl Radical Dimerization & Reactions Beyond it
T. N. Das
Ibid
 29. Dynamics of OH radical generation in laser induced dissociation of cyclic ethers at 193 nm.
Awadhesh Kumar
Ibid
 30. Curcumin and its copper(II) complexes as superoxide dismutase (SOD) mimics
K. Indira Priyadarsini
Ibid
 31. Mechanistic studies on the antioxidant activity of hydroxycinnamic acid: pulse radiolysis study in combination with biochemical assay.
S. Adhikari,
International conference on antioxidants, oxidative stress and inflammation in chronic diseases, January 12-13, 2006, Nagpur, India
 32. Fundamental of Radiation Chemistry
D.B. Naik,
Workshop on Radiation and Photochemistry during January 2-4, 2006 Homi Bhabha Centre for Science Education, Mumbai
 33. Organic Photochemistry
T. Mukherjee,
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 34. Time-resolved Measurements using Photochemical Techniques.
H. Pal,
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 35. Role of hydrogels in metal ion extraction and nanoparticle production,
Manmohan Kumar.
National Symposium on Designing the Molecular World Through Chemistry, Dept. of Chem., Faculty of Sci., Banaras Hindu University, Varanasi, March 24, 2006.
 36. State-selective detection of transients employing LIF and resonant four-wave mixing techniques,
Awadhesh Kumar and P.D. Naik.
Discussion meeting on spectroscopy and dynamics of molecules and clusters, The International Centre, Goa, March 30-April 1, 2006.

37. Radiation Chemical Research: Basic studies and applications
D.B. Naik
National Conference on Recent Trends in Chemical Research held at Mangalore University during May 13-14, 2006
38. Ultrafast Pump-Probe Spectroscopy – Techniques & Applications in Exploring the Ultrafast Dynamics of the Photoinduced Molecular Processes, Part I & II,
D.K. Palit
SERC School on Ultrafast Studies, July 10-29, 2006, Hyderabad University.
39. Radiation Chemical Research: Basic studies and applications
D.B. Naik
One Day Seminar on “Atomic Energy for the Development of Nation” organised by Indian Nuclear Society at Karnatak Science College Dharwad on 2nd September 2006
40. Ultrafast interfacial electron transfer dynamics in dye-sensitized photovoltaic cells
H.N. Ghosh
Workshop on Smart Materials and Structure, Naval Materials Research Laboratory, Ambarnath, Maharashtra, India, Sept. 18-22, 2006
41. Ultrafast Dynamics of Vibration and Hydrogen-Bond
Dipak K. Palit,
Indo-French Workshop on ‘Free Electron Lasers and Applications’, Goa, March 20-25, 2006.
42. RPCD divisional activities
S.K.Sarkar
Talk for OCES-49 Chemistry Trainees, April 19, 2006
43. Gas Phase Chemistry: State-of-the art Spectroscopic Techniques
S.K. Sarkar
Theme Talk in ISRAPS Discussion Meeting on Gas Phase Chemistry: State-of-the art Spectroscopic Techniques, TIFR, Mumbai, October 16, 2006.
44. Laser induced fluorescence spectroscopy: A versatile technique in gas phase
Dhanya Suresh
ISRAPS Discussion Meeting on Gas Phase Chemistry: State-of-the art Spectroscopic Techniques, TIFR, Mumbai, October 16, 2006.
45. Laser Isotope Separation
P.N. Bajaj
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46. Research on Polymer Science in Chemistry Group, BARC: Past and Present
Manmohan Kumar
ISRAPS Discussion Meeting on Polymer Science and Applications, at BARC, Mumbai, on December 27, 2006.

Symposia, Conferences and Meetings

- 1 Free Radical Reactions of Selected Antioxidants : Mechanistic Studies using Electron Pulse Radiolysis Technique
T. Mukherjee
International conference on Free Radicals & Antioxidants in Health, Disease & Radiation, January 15-18, 2006, SFRR India. Kolkatta
- 2 Studies on desorption of an anti-thyroid drug methimazole on silver nanoparticles by SERS and DFT calculations
N. Biswas, S. Kapoor, Anjana Sarkar, S.K. Sarkar and T. Mukherjee
20th International Conference on Raman Spectroscopy: ICORS 2006; Aug. 20-25, 2005 at Yokohama Japan
- 3 Antioxidant properties of a novel marine analogue of dendrodione
Strayo De, Anjana Sarkar, S. Adhikari, T. Mukherjee, T.P.A. Devasagayam, in
International conference on free radicals and antioxidants in health, disease and radiation, 15-18 January, 2006, Kolkatta.
- 4 Structure and Stability of Vitamin-E Radicals: A Molecular Modelling Investigation
T.K. Ghanty, Soumyakanti Adhikari and T. Mukherjee,
International conference on free radicals and antioxidants in health, disease and radiation, 16-18 January, 2006, Kolkatta.
- 5 A Realization of molecular logic gates by femtosecond multi-photon interaction
A. Materny, J. Konradi, A.V. Scaria and A.K. Singh
70th Annual Meeting of the Deutsche Physikalische Gesellschaft (DPG), Frankfurt, March 13-17, 2006
- 6 Selective spectral filtering of molecular modes in solution phase using optimal control in four-wave-mixing spectroscopy
J. Konradi, A. K. Singh, A. Scaria, and A. Materny
70th Annual Meeting of the Deutsche Physikalische Gesellschaft (DPG), Frankfurt, March 13-17, 2006
- 7 Ultrafast dynamics of molecules exhibiting double minimum potential
A. Scaria, J. Konradi, A. K. Singh, and A. Materny
70th Annual Meeting of the Deutsche Physikalische Gesellschaft (DPG), Frankfurt, March 13-17, 2006
- 8 External electric field effects on ultrafast electron transfer dynamics
A. K. Singh, J. Konradi, A. Scaria, and A. Materny
70th Annual Meeting of the Deutsche Physikalische Gesellschaft (DPG), Frankfurt, March 13-17, 2006
- 9 Comparative study of the morphology, aggregation and photolysis of silver nanoparticles prepared by chemical reduction of Ag⁺ using borohydride and amino acids.
J. A. Jacob, N. Biswas, S. Kapoor and T. Mukherjee
International Conference on Nanoscience and Technology, IIT Delhi, March 16-18, 2006.
- 10 Preparation, characterization and surface modification of silver nanoparticles in formamide
A. Sarkar, S. Kapoor and T. Mukherjee,

- International Conference on Nanoscience and Technology, IIT Delhi, March 16-18, 2006.
- 11 Development of polymeric composite of ammonium phosphomolybdate for removal of radiocesium from acid solution.
S.C. Tripathi, S.K. Pathak, U. Jambunathan, Manmohan Kumar and P.N. Bajaj
National symposium on designing the molecular world through chemistry, Dept. of Chem., Faculty of Sci., Banaras Hindu Univ., Varanasi, March 24-25, 2006.
 - 12 OH production in 193 nm photodissociation of simple epoxides
Sumana SenGupta, Awadhesh Kumar, P.D. Naik and P.N. Bajaj
Discussion Meeting on Spectroscopy and Dynamics of Molecules and Clusters, The International Centre, Goa, March 30- April 1, 2006.
 - 13 Dynamics of HCl formation from chlorosilane: An experimental and theoretical study
S. Dhanya, A. Kumar and P.D. Naik
Discussion Meeting on Spectroscopy and Dynamics of Molecules and Clusters, The International Center, Goa, March 30-April 1, 2006.
 - 14 Analysis and control of the internal conversion dynamics in β -carotene on a femtosecond time scale
A. K. Singh, J. Konradi, A. Scaria, and A. Materny
5th European Conference On Nonlinear Optical Spectroscopy (ECONOS 06), April 9-11, Smolenice, Slovak Republic (2006)
 - 15 Studies on adsorption of triazole and tetrazole derivatives on silver nanoparticles by SERS and DFT calculations
N. Biswas, S. Thomas, S. Kapoor and T. Mukherjee
8th International Conference on Nanostructured Materials (NANO 2006), IISc, Bangalore, Aug. 20 -25, 2006, page 254.
 - 16 Synthesis of nanostructured materials in different matrices
A. Sarkar, N. Biswas, S. Kapoor and T. Mukherjee
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 - 17 Preparation, characterization, surface modification and redox reactions of silver and gold nanoparticles in the presence of amino acids
J. A. Jacob, N. Biswas, S. Kapoor and T. Mukherjee
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 - 18 Excitonic photoluminescence in ZnS nanoparticles: effect of surface modification
M.C. Rath, T. Mukherjee and H.N. Ghosh
8th International Conference on Nanostructured Materials, August 20-25, 2006 at IISc, Bangalore
 - 19 Copper(II)- Curcumin complex complements MnSOD enzyme in splenic lymphocytes.
Amit Kunwar, H. Narang, A. Barik, R. Pandey, M. Krishna and K.I. Priyadarsini
International free radical summer school: biomarkers of oxidative stress, 30th Sep-6th

Oct. 2006, Spetses island, Greece.

- 20 Differential up-take and fluorescence of curcumin, a yellow pigment from turmeric, in normal vs. tumor cells
Amit Kunwar, A. Barik, B. Mishra, K. Rathinasamy, R. Pandey, K.I. Priyadarsini and K. B. Sainis
National Academy of Sciences, India Platinum Jubilee Symposium on "Science and Technology in the Service of Society", Indian Institute of Technology, Mumbai, 6-8 Oct. 2006. (Poster award)
- 21 Breakdown maintenance of electron gun of 7 MeV LINAC
M. Toley, S.J. Shinde, S.A. Nadkarni, T. Mukherjee and S.K. Sarkar
Indian Particle Accelerator Conference (InPAC) , BARC, Nov. 1-4, 2006
- 22 Coherent Control of Molecular Dynamics with Shaped Femtosecond Laser Pulses
Ajay K. Singh and Sisir K. Sarkar
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- 23 Selective photochemical reaction of $^{32}\text{SF}_6$ with H_2S on irradiation with a free-running TEA- CO_2 laser
Lala Abhinandan, N.S. Benerjee, N. Varshney, U. Nundy and P.N. Bajaj
National Symposium, RRCAT, Indore, December, 5-8, 2006
- 24 Internal Conversion Dynamics in β -Carotene on a Femtosecond Time Scale: Analysis and Control,
A.K. Singh, S.K. Sarkar, Jakow Konradi, Abraham Scaria, and Arnulf Materny
Progress on Tunable Lasers for Ultrafast Processes and Applications (PTLUPA6), Dec 21-22, 2006, IIT Madras, Chennai.
- 25 Radiolytic synthesis and study of optical properties of ZnO nanostructures in different media
Y. Sunitha, M.C. Rath, S.K. Sarkar, T. Mukherjee and H.N. Ghosh
International Symposium on Chemistry of Materials, BARC, Mumbai, December 4-8, 2006
- 26 Preparation and study of optical properties of PVA capped CdSe nanoparticles
Chetan Shah, M.C. Rath, Manmohan Kumar and P.N. Bajaj
International Symposium on Chemistry of Materials, BARC, Mumbai, December 4-8, 2006
- 27 Structure and polarizability of $\text{X}_2 \cdot n\text{H}_2\text{O}$ Clusters ($\text{X}=\text{Cl}, \text{Br}, \text{I}; n=1-8$)
A. K. Pathak, T. Mukherjee, and D. K. Maity,
DAE-BRNS Theme meeting on materials modeling at different length scale, 2006, BARC, page-50.
- 28 Absorption & fluorescence studies of curcumin bound to liposomes & lymphocytes: effect of γ -irradiation.
Amit Kunwar, A. Barik, R. Pandey, and K. I. Priyadarsini.
Trombay Symposium on Radiation and Photochemistry, BARC, Mumbai, Jan. 5-9, 2006.

- 29 β -Cyclodextrin-inclusion complex of curcumin,
S. Swaroop, Beena Mishra, and K. I. Priyadarsini.
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- 30 Effect of pH on one-electron oxidation of selenium-aminoacids,
Beena Mishra, K. Indira Priyadarsini, and H. Mohan.
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- 31 Hydrogen generation from titanium metal turbidity,
G. Kumbhar, A.D. Belapurkar, D.B. Naik, G. Venkateswaran and K. Kishore.
Ibid
- 32 Pulse radiolysis studies on 2,3-pyridinedicarboxylic acid in aqueous solutions,
S.B. Dhiman and D.B. Naik
Ibid
- 33 Free radical scavenging reactions of 2- and 4-hydroxybenzyl alcohols in aqueous
medium.
D.B. Naik and D.G. Raut
Ibid
- 34 Effect of Excess Electron on Br₂ Hydration,
Arup Pathak, Dilip Maity and T. Mukherjee.
Ibid
- 35 Ultrafast Relaxation Dynamics in Michler's Thione,
Jahur A. Mondal, H. N. Ghosh and Dipak K. Palit.
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- 36 S₂-fluorescence and Ultrafast Relaxation Dynamics in the Excited Singlet States of
a Ketocyanine Dye,
Jahur A. Mondal, Sandeep Verma, H. N. Ghosh and Dipak K. Palit.
Ibid
- 37 Ultrafast Dynamics in the Excited State of Amino Derivatives of Fluorenone.
Vaishali Samant, G. Rama Krishna, A. K. Singh, H. N. Ghosh and Dipak K. Palit.
Ibid
- 378 Pulse Radiolysis Studies in Acetonitrile.
Vaishali Samant, Ajay K. Singh, Tulsi Mukherjee and Dipak K. Palit,
Ibid
- 39 Carbonate radical anion induced intermolecular electron transfer in bovine serum
albumin.
Ravi Joshi and T. Mukherjee,
Ibid
- 40 Effect of substituents on the bond dissociation energy and ionization potential of
salicylic acid derivatives: An ab-initio study
Ravi Joshi, Tapan K. Ghanty and Tulsi Mukherjee.
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- 41 Dynamics of OH formation in photodissociation of 3,4-Dihydro-2H-Pyran at 193 nm.

- Sumana SenGupta, Awadhesh Kumar, P.D. Naik and P. N. Bajaj
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- 42 Effect of added salts on the palisade layer water structure of triton-X-100 micelle.
T. Goel, M. Kumbhakar, T. Mukherjee and H. Pal
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- 43 Photophysical study and DNS binding of ruthenium (II) polypyridyl complexes.
M. Deshpande, A. S. Kumbhar, M. Kumbhakar, H. Pal and V. G. Puranik
Ibid
- 44 Effect of protic solvents on twisted intramolecular charge transfer (TICT) state formation in coumarin-152 and coumarin-481 dyes.
P. Dahiya, M. Kumbhakar, T. Mukherjee, and H. Pal
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- 45 Inclusion Complex Formation of Neutral Red with Cucurbit[7]uril: Effect on Photophysical Properties and Acidity Constants.
J. Mohanty, A. C. Bhasikuttan, W. M. Nau and H. Pal
Ibid
- 46 Nature of Amine Donors on Bimolecular Electron Transfer Kinetics.
A. K. Satpati, S. Senthilkumar, M. Kumbhakar, S. Nath and H. Pal
Ibid
- 47 Aza-crown Tethered Diaryl 1,3,4-oxadiazoles: New Donor-acceptor Fluoroionophores as Potential Metal Ion Sensors.
S. Sundaram, S. H. Mashraqui, S. Kapoor, A. V. Sapre and A. C. Bhasikuttan
Ibid
- 48 Reduction and aggregation of silver ions in viscous media
Jasmine A. Jacob, N. Biswas, S. Kapoor and T. Mukherjee
Ibid
- 49 Reduction and aggregation of silver ions in formamide
A. Sarkar, N. Biswas, S. Kapoor and T. Mukherjee
Ibid
- 50 Gamma radiolytic studies of CdS nanocrystallites
P. Thakur, S. S. Joshi, S. Kapoor and T. Mukherjee
Ibid
- 51 Self-assembly of Ag nanoparticles-biotin composites into long fibre-like structures
S. Hegde, S. Kapoor, S. S. Joshi, and T. Mukherjee
Ibid
- 52 Aza-crown tethered diaryl 1,3,4-oxadiazoles:New donor-acceptor fluoroionophores as potential metal ion sensors
S. Sundaram, S. H. Mashraqui, S. Kapoor, A. V. Sapre and A. C. Bhasikuttan
Ibid
- 53 Radiolytic formation of Ag nanoparticles from aqueous AgBr suspension in the presence of polyvinyl alcohol.
Manmohan Kumar

- Ibid
- 54 193 nm photolysis of chloromethyltrimethyl silane - An experimental and theoretical study
S. Dhanya, Awadhesh Kumar, P.D. Naik and R. D. Saini
Ibid
- 55 Ultrafast charge carrier relaxation dynamics in photoexcited CdSe nano-crystalline thin film synthesized by chemical deposition
M. C. Rath, J. A. Mondal, D. K. Palit, T. Mukherjee and H. N. Ghosh
Ibid
- 56 Ultrafast H-bond dynamics of fluoride sensing ruthenium complexes
A.D. Jose, P. Kar, B. Ganguly, A. Das, D. Koley, W. Thiel, G. Ramakrishna, D. K. Palit, and H. N. Ghosh
Ibid
- 57 Dynamics of CO₂ and CO formation in photodissociation of unsaturated carboxylic acids at 193 nm
Sumana SenGupta, Awadhesh Kumar, P. D. Naik and P. N. Bajaj
Ibid
- 58 LINAC automation for pulse radiolysis
M.A.Toley, S.J.Shinde, V.N.Rao, S.A.Nadkarni, S.K.Sarkar, T.Mukherjee
Ibid
- 59 Spectral filtering of femtosecond coherent anti-Stokes Raman scattering by means of optimal control strategies
J. Konradi, A. V. Scaria, A. K. Singh, and A. Materny
Ibid
- 60 Hydrogen generation from titanium metal turbidity
A.G. Kumbhar, A.D. Belapurkar, D.B. Naik, G. Venkateswaran and K. Kishore
Ibid
- 61 Copper (II) metal chelates of curcumin and their antioxidant ability
A. Barik, B. Mishra, Amit Kunwar, R. M. Kadam and K. I. Priyadarsini
Ibid
- 62 Studies on laser enrichment of oxygen-18
P. Mathi, D.N. Joshi, A.K. Nayak, S.K. Sarkar and V. Parthasarathy
National Laser Symp. (NLS-6) Dec. 5-8, 2006
- 63* Spectral filtering of coherent anti-Stokes spectra using optimal control scheme
J. Konradi, A. V. Scaria, A. K. Singh and A. Materny
Humboldt Kolleg, November 2005, BHU, Varanasi, India
- 64* Selective spectral filtering of molecular modes in solution phase using optimal control in four-wave-mixing spectroscopy
J. Konradi, A.V. Scaria, A.K. Singh and A. Materny
IV international workshop on optimal control of quantum dynamics: theory and experiment, Ringberg, Germany, November 2005

65* Dynamics of intermolecular hydrogen bond between excited singlet state of aminofluorenone and alcohols
Vaishali Samant, G. Rama Krishna, A.K. Singh, H.N. Ghosh, and D.K. Palit
National Laser Symposium (NLS-2005), Vellore Institute of Technology, Vellore, December 7-10, 2005

* *Were not included in 2005 publication list*

HRDD / Teaching / Reviewing / Symposium Organisation

1 49th batch of Chemistry Trainees

Course Co-ordinators: Dr. S.K.Sarkar, H. Pal

Lecturers: D. K. Palit, K. I. Priyadarsini, D. B. Naik, Dhanya Suresh, Awadhesh Kumar

Tutorial, Practicals & Special Practicals: A. Barik, G. R. Dey, J. Mohanty, Awadhesh Kumar, Sumana SenGupta

Member of Seminar Committee: K. I. Priyadarsini

2 Dr P.N. Bajaj was Chairman mid-term Viva-voce Committee and Chairman, Project Viva-voce Committee

3 P.D. Naik, D.B. Naik, Dhanya Suresh Members of Selection Committees (for 50th batch):

4 Dr. S.K.Sarkar and Dr. P.N. Bajaj were members of C-D Selection Committee.

5 Dr. P.N. Bajaj was a member of KSKRA screening committee.

6 Dr G. R. Dey was a member of screening committee for Cat - I Trainee (Chemistry).

7 A. K. Singh, Member for the Selection Committee for the Category-I Trainees for BARC (Chemistry: November 21-23, 2006; Physics: November 28-29, 2006).

8 S.K. Sarkar served as a committee Chairman for selection of JRF under BARC- Pune University collaborative programme held at Pune University

9 S. Adhikari is continuing the duties of Secretary General, SFRR-India and Assistant Editor, IJRR.

10 D.B. Naik organized a 3-day Workshop on Radiation and Photochemistry during January 2-4, 2006 at Homi Bhabha Centre for Science Education, Mankhurd.

11 D.B. Naik and P.D. Naik organized an ISRAPS Discussion meeting on "Gas phase chemistry: State of the art spectroscopic techniques" in collaboration with Department of Chemical Sciences, TIFR at TIFR, Mumbai on 16th October 2006.

12 D.B. Naik organized a ISRAPS Discussion meeting on "Polymer Science and applications" at Multipurpose Hall, BARC Training School Hostel Anushaktinagar on 27th December 2007 in association with RPCD, BARC.

- 13 Dr (Smt) K.I. Priyadarsini Convened Theme meeting on “Antioxidants & radioprotectors : A current status in BARC”
- 14 Dr. S.K.Sarkar served as Session Chairman, International conference on Free Radicals & Antioxidants in Health, Disease & Radiation, January 15-18, 2006, SFRR India. Kolkata & NLS-6, RRCAT, Indore.
- 15 A. Barik, Ms.J. Mohanty and Ms. T. Goel attended the SERC School on Biophotonics at RRCAT, Indore, for the period of 6th-24th February, 2006
- 16 D.B. Naik examined a Ph.D. thesis submitted to Pune University and also visited Pune University for conducting Viva-Voce
- 17 D.B. Naik examined two Ph.D. theses submitted to Karnatak University Dharwad and Kuvempu University Shimoga.
- 18 D. B. Naik worked as Convener of Aptitude test in Chemistry for B.Sc. and M.Sc. students of Mumbai University held at Ruia College on 3rd September 2006.
- 19 D. B. Naik attended meeting of Board of Postgraduate Studies in Chemistry of Mangalore University on 30-9-2006.
- 20 D.B. Naik visited Kuvempu University for conducting Viva-Voce of a Ph.D. candidate.
- 21 Dr. D.K. Palit co-ordinated inspection of the safety aspects of Medical and Electronics Division, BARC, as the Convener of Regulatory inspection Team (RIT) II.
- 22 Dr P.N. Bajaj, member, BARC Committee for preparation of manual for re-authorisation of operation of the radiation and nuclear facilities under BARC