

Indexes to Volume 82

SUBJECT INDEX

Mathematical Methods in Physics

- Solitons and periodic solutions to a couple of fractional nonlinear evolution equations
M Mirzazadeh, M Eslami and Anjan Biswas 465–476
- New exact solutions of the generalized Zakharov–Kuznetsov modified equal-width equation
Yusuf Pandir 949–964
- Quantum restoration of broken symmetry in one-dimensional loop space
Pinaki Patra, Tanmay Mandal and Jyoti Prasad Saha 965–971

Quantum Mechanics, Field Theories and Special Relativity

- Einstein–Podolski–Rosen paradox, non-commuting operator, complete wavefunction and entanglement
Andrew Das Arulsamy 477–488
- Effects of complex parameters on classical trajectories of Hamiltonian systems
Asiri Nanayakkara and Thilagarajah Mathanaranjan 973–983

Statistical Physics

- Finite-time synchronization of a class of autonomous chaotic systems
Huini Lin and Jianping Cai 489–498
- Synchronization of general complex networks via adaptive control schemes
Ping He, Chun-Guo Jing, Chang-Zhong Chen, Tao Fan and Hassan Saberi Nik 499–514
- A phenomenological approach to the equation of state of a unitary Fermi gas
M V N Murthy, M Brack and R K Bhaduri 985–993
- Chaotic behaviour of nonlinear coupled reaction–diffusion system in four-dimensional space
Li Zhang, Shutang Liu and Chenglong Yu 995–1009
- The extended (G'/G) -expansion method and travelling wave solutions for the perturbed nonlinear Schrödinger's equation with Kerr law nonlinearity
Zaiyun Zhang, Jianhua Huang, Juan Zhong, Sha-Sha Dou, Jiao Liu, Dan Peng and Ting Gao 1011–1029

Particle Physics

- Shadowing corrections to the derivative of the reduced cross-section at small x
B Rezaei and G R Boroun 1031–1038
- Extent of sensitivity of single photon production to parton distribution functions
Somnath De 1039–1047

Nuclear Physics

- Impact of density-dependent symmetry energy and Coulomb interactions on the evolution of intermediate mass fragments *Karan Singh Vinayak and Suneel Kumar* 515–527
- Keynote address: One hundred years of nuclear physics – Progress and prospects *S Kailas* 619–624
- S-matrix approach to the equation of state of dilute nuclear matter *J N De, S K Samaddar and B K Agrawal* 625–635
- The effect of nonlinearity in relativistic nucleon–nucleon potential *B B Sahu, S K Singh, M Bhuyan and S K Patra* 637–647
- Investigation of exotic modes of spinning nuclei near ^{90}Zr *R Palit and S Saha* 649–658
- Deformed configurations, band structures and spectroscopic properties of $N = 50$ Ge and Se nuclei *S K Ghorui and C R Praharaj* 659–669
- Fission dynamics of hot nuclei *Santanu Pal and Jhiliam Sadhukhan* 671–682
- Probing of complete and incomplete fusion dynamics in heavy-ion collision *D Singh, Rahbar Ali, M Afzal Ansari, B S Tomar, M H Rashid, R Guin, S K Das, R Kumar, R P Singh, S Muralithar and R K Bhowmik* 683–696
- Cluster knockout reactions *Arun K Jain and B N Joshi* 697–704
- Decay of heavy and superheavy nuclei *K P Santhosh* 705–715
- Comprehensive decay law for emission of charged particles and exotic cluster *Basudeb Sahu* 717–725
- The effect of nuclear structure in the emission of reaction products in heavy-ion reactions *Samir Kundu* 727–741
- Lie algebra symmetries and quantum phase transitions in nuclei *V K B Kota* 743–755
- Deformed shell model studies of spectroscopic properties of ^{64}Zn and ^{64}Ni and the positron double beta decay of ^{64}Zn *R Sahu and V K B Kota* 757–767
- Nuclear structure at high spin using multidetector gamma array and ancillary detectors *S Muralithar* 769–778
- Evolution of giant dipole resonance width at low temperatures – New perspectives *S Mukhopadhyay* 779–787
- Double folding model analysis of elastic scattering of halo nucleus ^{11}Be from ^{64}Zn *M Hemalatha* 789–795
- Neutron star in the presence of strong magnetic field *K K Mohanta, R Mallick, N R Panda, L P Singh and P K Sahu* 797–807
- Effective interaction: From nuclear reactions to neutron stars *D N Basu* 809–822
- Probing the density content of the nuclear symmetry energy *B K Agrawal, J N De and S K Samaddar* 823–830

Massive neutron stars and their implications	<i>T K Jha and Keshab C Panda</i>	831–839
Accuracy of simple folding model in the calculation of the direct part of real α – α interaction potential	<i>Keshab C Panda, Binod C Sahu and Jhasaketan Bhoi</i>	841–849
A pilgrimage through superheavy valley	<i>M Bhuyan and S K Patra</i>	851–858
Nucleon–nucleon scattering in the light of supersymmetric quantum mechanics	<i>J Bhoi, U Laha and K C Panda</i>	859–865
Unified approach to alpha decay calculations	<i>C S Shastry, S Mahadevan and K Aditya</i>	867–878
Classical simulations of heavy-ion fusion reactions and weakly-bound projectile breakup reactions	<i>S S Godre</i>	879–891
Transverse momentum spectra of the produced hadrons at SPS energy and a random walk model	<i>Bedangadas Mohanty</i>	893–905
Nuclear multifragmentation: Basic concepts	<i>G Chaudhuri, S Mallik and S Das Gupta</i>	907–917
Dynamics of light, intermediate, heavy and superheavy nuclear systems formed in heavy-ion collisions	<i>Manoj K Sharma and Gurvinder Kaur</i>	919–930
Evidences for magicity in superdeformed shapes	<i>Suresh Kumar</i>	931–941
Summary of the National Conference on Nuclear Physics 2013	<i>Suresh Kumar Patra</i>	943–944

Electromagnetism, Optics, Acoustics, Heat Transfer, Classical Mechanics and Fluid Dynamics

Imaging unsteady three-dimensional transport phenomena	<i>K Muralidhar</i>	3–14
High-power Yb-doped continuous-wave and pulsed fibre lasers	<i>B N Upadhyaya</i>	15–27
Development of coherent tunable source in 2–16 μm region using nonlinear frequency mixing processes	<i>Udit Chatterjee</i>	29–38
Optical fibre probes in the measurement of scattered light: Application for sensing turbidity	<i>M R Shenoy</i>	39–48
High-pressure continuously tunable CO ₂ lasers and molecular laser isotope separation	<i>E Ronander, H J Strydom and L R Botha</i>	49–58
Subwavelength propagation and localization of light using surface plasmons: A brief perspective	<i>G V Pavan Kumar, Danveer Singh, Partha Pratim Patra and Arindam Dasgupta</i>	59–70
Compact, common path quantitative phase microscopic techniques for imaging cell dynamics	<i>A Anand, P Vora, S Mahajan, V Trivedi, V Chhaniwal, A Singh, R Leitgeb and B Javidi</i>	71–78
Attosecond-correlated dynamics of two electrons in argon	<i>V Sharma, N Camus, B Fischer, M Kremer, A Rudenko, B Bergues, M Kuebel, N G Johnson, M F Kling, T Pfeifer, J Ullrich and R Moshhammer</i>	79–85

- Progress in sub-femtosecond control of electron localization in molecules
Kamal P Singh 87–95
- Ultrashort laser pulse–matter interaction: Implications for high energy materials
S Venugopal Rao 97–109
- Probing strong field ionization of solids with a Thomson parabola spectrometer
Malay Dalui, T Madhu Trivikram, Ram Gopal and M Krishnamurthy 111–120
- Feedback-controlled electro-kinetic traps for single-molecule spectroscopy
Manoj Kumbakhar, Dirk Hähnel, Ingo Gregor and Jörg Enderlein 121–134
- Laser applications in nuclear power plants
D N Sanyal 135–141
- Erbium–ytterbium fibre laser emitting more than 13 W of power in 1.55 μm region
Srikanth Gurram, Antony Kuruvilla, Rajpal Singh, Blacius Ekka, B N Upadhyay, K S Bindra and S M Oak 143–146
- Benefits of cryogenic cooling on the operation of a pulsed CO_2 laser
Utpal Nundy 147–152
- Enhanced performance of a repetitively pulsed 130 mJ KrF laser with improved pre-ionization parameters
N S Benerji, A Singh, N Varshnay and Bijendra Singh 153–157
- Measurement of the figure of merit of indigenously developed Nd-doped phosphate laser glass rods for use in high power lasers
A P Kulkarni, S Jain, M P Kamath, A S Joshi, P A Naik, P D Gupta, K Annapurna, A K Mandal, B Karmakar and R Sen 159–163
- Design and performance characteristics of a krypton chloride ($\lambda = 222 \text{ nm}$) excimer laser
N S Benerji, N Varshnay, A Singh and Bijendra Singh 165–171
- Atomic clocks: A brief history and current status of research in India
Poonam Arora, Amrita Awasthi, Vattikonda Bharath, Aishik Acharya, Suchi Yadav, Ashish Agarwal and Amitava Sen Gupta 173–183
- LOPUT Laser: A novel concept to realize single longitudinal mode laser
J George, K S Bindra and S M Oak 185–190
- Thermal birefringence-compensated linear intracavity frequency doubled Nd:YAG rod laser with 73 ns pulse duration and 160 W green output power
S K Sharma, A J Singh, P K Gupta, P Hedao, P K Mukhopadhyay, K Ranganathan, K S Bindra and S M Oak 191–195
- Efficient yellow beam generation by intracavity sum frequency mixing in DPSS Nd:YVO₄ laser
A J Singh, P K Gupta, S K Sharma, P K Mukhopadhyay, K S Bindra and S M Oak 197–202
- Measurement of flow fluctuations in single longitudinal mode pulsed dye laser
V S Rawat, N Kawade, G Sridhar, Sunita Singh and L M Gantayet 203–210
- Efficient delivery of 60 J pulse energy of long pulse Nd:YAG laser through 200 μm core diameter optical fibre
Ravindra Singh, Ambar Choubey, R K Jain, S C Vishwakarma, D K Agrawal, Sabir Ali, B N Upadhyaya and S M Oak 211–216

- Development of copper bromide laser master oscillator power amplifier system
G N Tiwari, R K Mishra, R Khare and S V Nakhe 217–225
- Generation of 2.1 μm wavelength from degenerate high gray track resistant potassium titanyl phosphate optical parametric oscillator
S Verma, C Mishra, V Kumar, M Yadav, K C Bahuguna, N S Vasan and S P Gaba 227–231
- Multimode laser emission from dye-doped hollow polymer optical fibre
C L Linslal, Jaison Peter, S Mathew and M Kailasnath 233–236
- Laser-assisted surface cleaning of metallic components
Aniruddha Kumar, R B Bhatt, P G Behere, Mohd Afzal, Arun Kumar, J P Nilaya and D J Biswas 237–242
- Versatile laser microfabrication techniques for lab-on-chip devices in general and uranium analysis in particular
Asmita Malik, S Sendhil Raja and P K Gupta 243–248
- Quantum coherent control of the vibrational dynamics of a polyatomic molecule using adaptive feedback control of a femtosecond laser
L R Botha, L E De Clercq, A M Smit, N Botha, E Ronander and H J Strydom 249–253
- Development of tilted fibre Bragg gratings using highly coherent 255 nm radiation
O Prakash, J Kumar, R Mahakud, U Kumbhkar, S V Nakhe and S K Dixit 255–258
- Reflection mode holographic recording in methylene blue-sensitized polyvinyl alcohol acrylamide films
C S Rajesh, R Anjana, S S Sreeroop and C Sudha Kartha 259–264
- HF-based clad etching of fibre Bragg grating and its utilization in concentration sensing of laser dye in dye–ethanol solution
J Kumar, R Mahakud, O Prakash and S K Dixit 265–269
- Spectroscopy and laser characterization of synthesized supramolecular host cucurbit[7]uril using aqueous Rhodamine B dye
Deepak R Boraste, Monika Gupta, Ganapati Shankarling, Alok K Ray and Sandip K Nayak 271–275
- Taming fluorescence yield of dye insensitive to temperature by non-covalent complex with the host CB[7] for aqueous dye lasers
Monika Gupta, Krishna K Jagtap, V Sudarsan and Alok K Ray 277–281
- Second harmonic generation from corona-poled polymer thin films of Y-shape chromophore with different isolation groups
Mukesh P Joshi, S Raj Mohan, Balakrishna Kolli, Sarada P Mishra, Akshaya K Palai, Tapan Kanai, T S Dhami, L M Kukreja and A B Samui 283–288
- Optimization for sinusoidal profiles in surface relief gratings recorded on photoresist
Sanjiva Kumar, Amrita Debnath, R B Tokas, K Divakar Rao, D V Udupa and N K Sahoo 289–294
- Electromagnetically-induced transparency in Doppler-broadened five-level systems
Azeem B Mirza and Suneel Singh 295–300

- Spectral narrowing of coherent population trapping resonance in laser-cooled and room-temperature atomic gas *S Pradhan, S Mishra, R Behera, N Kawade and A K Das* 301–306
- Modulational instability of nematic phase *T Mithun and K Porsezian* 307–312
- A comparative study on dual colour soft aperture cascaded second-order mode-locking with different nonlinear optical crystals *Shyamal Mondal, Satya Pratap Singh, Sourabh Mukhopadhyay, Aditya Date, Kamal Hussain, Showvik Mukherjee and Prasanta Kumar Datta* 313–319
- Picosecond nonlinear optical properties of cuprous oxide with different nano-morphologies *P Harshavardhan Reddy, H Sekhar and D Narayana Rao* 321–325
- Observation of two-photon absorption at UV radiation in ZnS quantum dots *Manajit Chattopadhyay, Pathik Kumbhakar and Udit Chatterjee* 327–330
- Synthesis of Cu_2O , CuCl , and Cu_2OCl_2 nanoparticles by ultrafast laser ablation of copper in liquid media *Syed Hamad, G Krishna Podagatlapalli, Surya P Tewari and S Venugopal Rao* 331–337
- Impact of higher-order dispersion in the modulational instability spectrum of a relaxing coupled saturable media *K Nithyanandan, R Vasantha Jayakantha Raja, T Uthayakumar and K Porsezian* 339–345
- Laser shock peening of steam turbine blade for enhanced service life *R Sundar, B K Pant, Harish Kumar, P Ganesh, D C Nagpure, P Haedoo, Rakesh Kaul, K Ranganathan, K S Bindra, S M Oak and L M Kukreja* 347–351
- Size-independent peak shift between normal and upconversion photoluminescence in MPA-capped CdTe nanoparticles *S Ananthakumar, J Jayabalan, Asha Singh, Salahuddin Khan, Subhash Prajapati, S Moorthy Babu and Rama Chari* 353–358
- Coherent oscillations of holes in $\text{GaAs}_{0.86}\text{P}_{0.14}/\text{Al}_{0.7}\text{Ga}_{0.3}\text{As}$ surface quantum well *Salahuddin Khan, J Jayabalan, Asha Singh, Rama Chari, Suparna Pal, S Porwal, T K Sharma and S M Oak* 359–364
- Spectral analysis of K-shell X-ray emission of magnesium plasma produced by ultrashort high-intensity laser pulse irradiation *V Arora, U Chakravarty, Manoranjan P Singh, J A Chakera, P A Naik and P D Gupta* 365–371
- CO_2 laser-inscribed low-cost, shortest-period long-period fibre grating in B–Ge co-doped fibre for high-sensitivity strain measurement *Smita Chaubey, Sanjay Kher, Jai Kishore and S M Oak* 373–377
- Linearly polarized intracavity passive Q-switched Yb-doped photonic crystal fibre laser *Usha Chakravarty, Antony Kuruvilla, Rajpal Singh, B N Upadhyay, K S Bindra and S M Oak* 379–383

- Infrared differential absorption lidar for stand-off detection of chemical agents
A K Razdan, S Veerabuthiran, M K Jindal and R K Sharma 385–389
- Deriving aerosol scattering ratio using range-resolved lidar ratio *Reji K Dhaman,
V Krishnakumar, V P Mahadevan Pillai, M Satyanarayana
and K Raghunath* 391–395
- Biomedical and environmental applications of laser-induced breakdown spectroscopy
*V K Unnikrishnan, K S Choudhari, Suresh D Kulkarni,
Rajesh Nayak, V B Kartha, C Santhosh and B M Suri* 397–401
- Measurement of radiative lifetime in atomic samarium using simultaneous detection of laser-induced fluorescence and photoionization signals *A C Sahoo, M L Shah,
P K Mandal, A K Pulhani, G P Gupta, Vas Dev and B M Suri* 403–408
- Upconversion studies in rare earth ions-doped lanthanide materials *A K Singh,
K Kumar and S B Rai* 409–412
- Tunable third-harmonic probe for non-degenerate ultrafast pump–probe measurements
*Asha Singh, Salahuddin Khan, Podili Sivasankaraiah,
J Jayabalan and Rama Chari* 413–417
- Optimization of transfer of laser-cooled atom cloud to a quadrupole magnetic trap
S P Ram, S K Tiwari, S R Mishra and H S Rawat 419–423
- Time-dependent micro-Raman scattering studies of polyvinyl alcohol and silver nitrate thin films
K Shadak Alee and D Narayana Rao 425–431
- Manipulation of microparticles and red blood cells using optoelectronic tweezers
*R S Verma, R Dasgupta, N Kumar, S Ahlawat,
A Uppal and P K Gupta* 433–437
- Three-dimensional instantaneous velocity field measurement using digital holography microscope
Dhananjay Kumar Singh and P K Panigrahi 439–444
- Measurement of copper vapour laser-induced deformation of dielectric-coated mirror surface by Michelson interferometer
*A Wahid, S Kundu, J S B Singh,
A K Singh, A Khattar, S K Maurya, J S Dhumal and K Dasgupta* 445–449
- Step index fibre using laser interferometer *A M Hamed* 529–536
- Growth rate enhancement of free-electron laser by two consecutive wigglers with axial magnetic field
A Hasanbeigi, A Farhadian and E Khademi Bidhendi 1049–1060
- Switching behaviour of nonlinear Mach–Zehnder interferometer based on photonic crystal geometry
Man Mohan Gupta and S Medhekar 1061–1074
- Erratum to: Measurement of copper vapour laser-induced deformation of dielectric-coated mirror surface by Michelson interferometer
*A Wahid, S Kundu,
J S B Singh, A K Singh, A Khattar, S K Maurya,
J S Dhumal and K Dasgupta* 1119

Plasma Physics

- Performance evaluation of self-breakdown-based single-gap plasma cathode electron gun
Niraj Kumar, Nalini Pareek, Udit Narayan Pal, Deepak Kumar Verma, Jitendra Prajapati, Mahesh Kumar, Bharat Lal Meena and Ram Prakash 1075–1084

Condensed Matter Physics

- Synthesis and characterization of gel-grown cobalt tartrate crystals
V Mathivanan, M Haris, T Prasanyaa and M Amgalan 537–548
- A new temperature-dependent equation of state of solids
Kamal Kapoor, Anuj Kumar and Narsingh Dass 549–561
- Erratum to: Boson bound states in the β -Fermi–Pasta–Ulam model
Xin-Guang Hu, Ju Xiang, Zheng Jiao, Yang Liu, Guo-Qiu Xie and Ke Hu 607
- A theoretical study of pump–probe experiment in single-layer, bilayer and multilayer graphene
Enamullah, Vipin Kumar, Upendra Kumar and Girish S Setlur 1085–1101
- First-principle study of nanostructures of functionalized graphene
Naveen Kumar, Jyoti Dhar Sharma and P K Ahluwalia 1103–1117

Interdisciplinary Physics and Materials Science

- Calculation of growth per cycle (GPC) of atomic layer deposited aluminium oxide nanolayers and dependence of GPC on surface OH concentration
Anu Philip, Subin Thomas and K Rajeev Kumar 563–569
- Predicting the growth of new links by new preferential attachment similarity indices
Ke Hu, Ju Xiang, Xiao-Ke Xu, Hui-Jia Li, Wan-Chun Yang and Yi Tang 571–583

Astronomy and Astrophysics

- Long term performance evaluation of the TACTIC imaging telescope using ~ 400 h Crab Nebula observation during 2003–2010
A K Tickoo, R Koul, R C Rannot, K K Yadav, P Chandra, V K Dhar, M K Koul, M Kothari, N K Agarwal, A Goyal, H C Goyal, S Kotwal, N Kumar, P Marandi, K Venugopal, K Chanchalani, N Bhatt, S Bhattacharyya, C Borwankar, N Chouhan, S R Kaul, A K Mitra, S Sahaynathan, M Sharma, K K Singh and C K Bhat 585–605
- Anomalous Kolar events revisited: Dark matter?
M V N Murthy and G Rajasekaran L609