

Pramana – journal of physics

CONTENTS – VOLUME 56

(January–June 2001)

Number 1

Review

- A review of the microscopic modeling of the 5-dim. black hole of IIB string theory *Spenta R Wadia* 1

Research Articles

- A plethora of strange nonchaotic attractors
..... *Surendra Singh Negi and Ramakrishna Ramaswamy* 47
- Study of $\Lambda\Lambda$ dynamics and ground state structure of low and medium mass double Λ hypernuclei *Md Abdul Khan and Tapan Kumar Das* 57
- Measurement of $\sigma\tau$ product of solid state laser materials by an alternative method: Application to Nd^{3+} doped YVO_4 crystal for ${}^4F_{3/2} \rightarrow {}^4I_{11/2}$ transition
..... *P K Mukhopadhyay, Jogy George, S K Sharma, Rakesh Kapoor and T P S Nathan* 77
- Overlapping $B^3\Pi_{0u} \leftarrow X^1\Sigma_g^+$ and ${}^1\Pi_{1u} \leftarrow X^1\Sigma_g^+$ non-radiative characteristic of Br_2 vapour in the wavelength region 505–541 nm
..... *Ramesh C Sharma and S N Thakur* 87
- Effect of radiative cooling on collapsing charged grains
..... *B P Pandey, Vinod Krishan and M Roy* 95
- The influence of a transverse magnetic field on a subnormal glow discharge in air
..... *D C Jana and S S Pradhan* 107

Rapid Communications

- Quantum hysteresis loops in microscopic system: The loop area as a dynamical parameter *Chandan Kumar Mondal and S P Bhattacharyya* L117
- Magnetization curves for non-elliptic cylindrical samples in a transverse field ..
..... *Debjani Karmakar and K V Bhagwat* L127

Numbers 2 & 3

Special Issue: Proceedings of the Winter Institute on Foundations of Quantum Theory and Quantum Optics

Preface	137
Foundations of quantum theory	
Bell's inequalities and Kolmogorov's axioms	<i>David Atkinson</i> 139
First experimental test of Bell inequalities performed using a non-maximally entangled state	<i>M Genovese, G Brida, C Novero and E Predazzi</i> 153
Test of Bell's inequality using the one-atom micromaser <i>A S Majumdar and N Nayak</i> 161
Quantum Zeno and anti-Zeno paradoxes	<i>S M Roy</i> 169
Facets of tripartite entanglement	<i>Dipankar Home</i> 179
Unsharp spin observables, non-locality and Fry, Walther and Li experiment <i>Sisir Roy</i> 189
Backward causation, hidden variables and the meaning of completeness <i>Huw Price</i> 199
An experiment to distinguish between de Broglie-Bohm and standard quantum mechanics	<i>Partha Ghose</i> 211
Quantum mechanics for two-timers	<i>P Mitra</i> 217
Classical topology and quantum states	<i>A P Balachandran</i> 223
A verification of quantum field theory – measurement of Casimir force <i>Anushree Roy and U Mohideen</i> 239
Quantum optics, coherent states and geometric phases	
Operator properties of generalized coherent state systems	<i>N Mukunda</i> 245
Nonlinear wave packet dynamics of coherent states	<i>J Banerji</i> 267
Near-noiseless amplification of light by a phase-sensitive fibre amplifier <i>Dmitry Levandovsky, Michael Vasilyev and Prem Kumar</i> 281
Observing SU(2) phases with neutrons <i>Veer Chand Rakhecha and Apoorva G Wagh</i> 287
Density operator description of geometric phenomena in the ray space <i>Apoorva G Wagh and Veer Chand Rakhecha</i> 305

A unified view on Aharanov–Bohm like phases and some applications	321
..... <i>C S Unnikrishnan</i>	
Quantum information processing	
From Schrödinger’s equation to the quantum search algorithm <i>Lov K Grover</i>	333
Causality, relativity and quantum correlation experiments with moving reference frames	349
..... <i>H Zbinden, J Brendel, W Tittel and N Gisin</i>	
Quantum entanglement and quantum computational algorithms	357
..... <i>Arvind</i>	
Quantum algorithms and the genetic code	367
..... <i>Apoorva Patel</i>	
Teleportation via decay	383
..... <i>S Bose, P L Knight, M B Plenio and V Vedral</i>	
Interference due to coherence swapping	393
..... <i>Arun Kumar Pati and Marek Zukowski</i>	
Cloning and superluminal signaling	403
..... <i>Sibasish Ghosh</i>	
Mesoscopic systems	
Spin tunnelling in mesoscopic systems	411
..... <i>Anupam Garg</i>	
Complex wave-interference phenomena: From the atomic nucleus to mesoscopic systems to microwave cavities	425
..... <i>Pier A Mello</i>	
Novel interference effects and a new quantum phase in mesoscopic systems	439
..... <i>P Singha Deo and A M Jayannavar</i>	
List of participants	453

Number 4

Review

The gravitational wave symphony of the Universe	457
..... <i>B S Sathyaprakash</i>	

Research Articles

Stochastic evolution of cosmological parameters in the early universe	477
..... <i>C Sivakumar, Moncy V John and K Babu Joseph</i>	
On the absence of scalar hair for charged rotating black holes in non-minimally coupled theories	487
..... <i>S Sen and N Banerjee</i>	
Spherically symmetric inhomogeneous dust collapse in higher dimensional space-time and cosmic censorship hypothesis	503
..... <i>K D Patil, S H Ghate and R V Saraykar</i>	

Bianchi type IX string cosmological model in general relativity	
..... <i>Raj Bali and Shuchi Dave</i>	513
Unpolarized structure functions and the parton distributions for nucleon in an independent quark model	
..... <i>N Barik and R N Mishra</i>	519
Calculating pure rotational transitions of water molecule with a simple Lanczos method	
..... <i>Pranab Sarkar</i>	537
Positron impact ionization of atomic hydrogen at low energies ...	
..... <i>K Chakrabarti</i>	545
RF breakdown by toroidal helicons	
..... <i>S K P Tripathi, D Bora and M Mishra</i>	551
Effect of three-body forces on the lattice dynamics of noble metals	
..... <i>P R Vyas, C V Pandya, T C Pandya and V B Gohel</i>	559
Critical behavior of electrical resistivity in amorphous Fe–Zr alloys	
..... <i>A Perumal</i>	569
Theory of sheath in a collisional multi-component plasma	
..... <i>M K Mahanta and K S Goswami</i>	579
Comment	
Dissociation energy of diatomic molecules – comment on the work of Kaur and Mahajan	
..... <i>Suresh Chandra</i>	C585
Erratum	589

Number 5

Research Articles

On conformally related <i>pp</i> -waves	
..... <i>Varsha Daftardar-Gejji</i>	591
Generalized scalar tensor theory in four and higher dimensional spherically symmetric space-time	
..... <i>Subenoy Chakraborty and Arabinda Ghosh</i>	597
VLF emissions from ionospheric/magnetospheric plasma	
..... <i>R P Patel and R P Singh</i>	605
Stability-transport modeling of the SINP tokamak discharges	
..... <i>S Lahiri, S Mukhopadhyay, A N S Iyengar and R Pal</i>	615
Linear theory of plasma filled backward wave oscillator	
..... <i>Preeti Vyas, Arti Gokhale, Y Choyal and K P Maheshwari</i>	625
Time dependent argon glow discharge treatment of Al-alloy samples	
..... <i>Sunanda J Karandikar, S V Gogawale, A K Dua and K K Kutty</i>	635

Ultra-low-frequency dust-electromagnetic modes in self-gravitating magnetized dusty plasmas	<i>A K Banerjee, M N Alam and A A Mamun</i>	643
Calculation of minor hysteresis loops under metastable to stable transformations in vortex matter	<i>P Chaddah and M Manekar</i>	657
Experimental evidence of photoinduced valence change of Fe ³⁺ in BaTiO ₃ and mechanism for growth of new grating in depleted pump condition: An EPR investigation	<i>M D Sastry, M Moghbel, Putcha Venkateswarlu and A Darwish</i>	667
Brief Reports		
Gauge transformation between retarded and multipolar gauges	<i>A M Stewart</i>	685
On the computation of molecular auxiliary functions A_n and B_n	<i>I I Guseinov, B A Mamedov, M Kara and M Orbay</i>	691
Measurements of K_β/K_α values using proton beam	<i>G A V Ramanamurthy, K Ramachandra Rao, Y Rama Krishna, P Venkateswarlu, K Bhaskara Rao, P V Ramana Rao, S Venkata Ratnam, V Seshagiri Rao, G J Nagaraju and S Bhuloka Reddy</i>	697
Rapid Communication		
Quantum entanglement in the NMR implementation of the Deutsch–Jozsa algorithm	<i>Arvind, Kavita Dorai and Anil Kumar</i>	L705

Number 6

Research Articles

Inheriting geodesic flows	<i>D B Lortan, S D Maharaj and N K Dadhich</i>	715
Resonance propagation in heavy-ion scattering	<i>Bijoy Kundu and B K Jain</i>	723
Decay energy of ⁵⁵ Fe from its inner Bremsstrahlung spectrum	<i>S L Keshava, K Gopala and P Venkataramaiah</i>	735
A new method for the calculation of Sommerfeld screening parameter σ_1 in x-ray spectra	<i>U D Misra and S Chaturvedi</i>	745
Relativistic nonlinearity and wave-guide propagation of rippled laser beam in plasma	<i>R K Khanna and K Baheti</i>	755
Photon transport in thin disordered slabs	<i>Venkatesh Gopal, S Anantha Ramakrishna, A K Sood and N Kumar</i>	767

Role of magnetic shear on the electrostatic current driven ion-cyclotron instability in the presence of parallel electric field	<i>Harsha Jalori and A K Gwal</i>	779
Propagation of waves in a multicomponent plasma having charged dust particles	<i>Sukanya Burman, A Roy Chowdhury and S N Paul</i>	785
Phase stabilization in cinnarizine complexes using X-ray profile analysis	<i>G Nagendrappa, S Subramanya Raj Urs, M S Madhava and R Somashekar</i>	797
Analytic methods for field induced tunneling in quantum wells with arbitrary potential profiles	<i>S Panda and B K Panda</i>	809
Overtone spectroscopy of some benzaldehyde derivatives	<i>P K Srivastava, D K Rai and S B Rai</i>	823
Subject Index		831
Author Index		836