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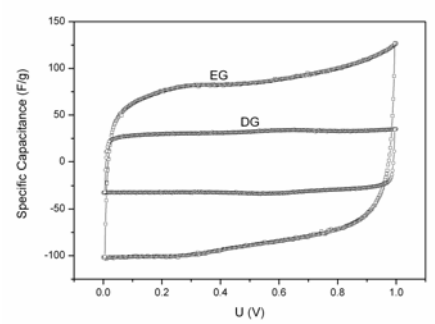
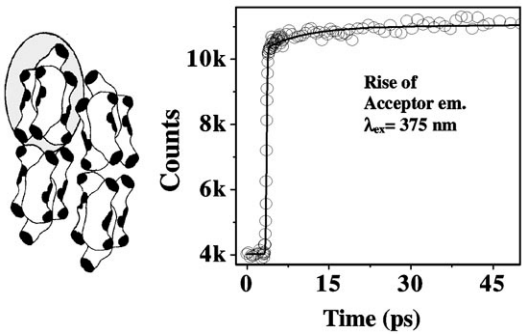
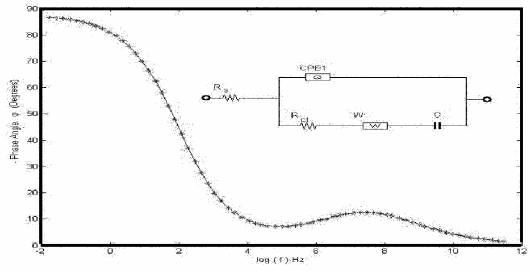


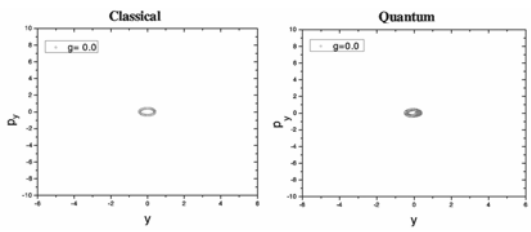
Graphenes prepared by the exfoliation of graphitic oxide and by the transformation of nanodiamond are good electrode materials for supercapacitors. The performance characteristics of the graphenes, which are directly related to the quality in terms of the number of layers and the surface area, are superior to that of carbon nanotubes.



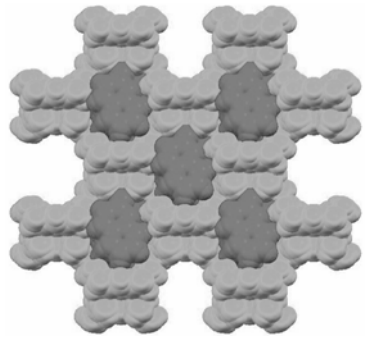
FRET from coumarin 153 to rhodamine 6G in a bile salt (NaDC) aggregate is studied by femtosecond up-conversion. With increase in excitation wavelength, contribution of the 4 ps component of FRET increases and that of the 3700 ps component decreases. This is attributed to the presence of donors at different locations.



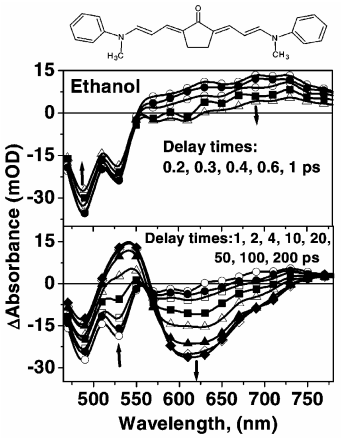
The feasibility of polypyrrole-coated stainless steel electrodes as electrochemical supercapacitors is investigated using impedance spectroscopy, galvanostatic charge–discharge studies and cyclic voltammetric experiments. The system parameters are obtained by constructing an appropriate equivalent circuit pertaining to the experimental Nyquist and Bode plots.



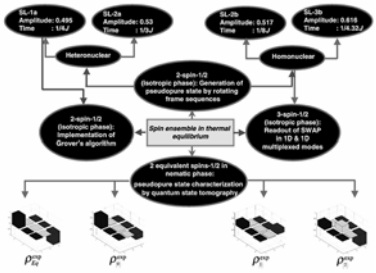
Quantum theory of motion provides a reasonable recipe for analysing the quantum signature of the classical field induced KAM transition in an anharmonic oscillator.



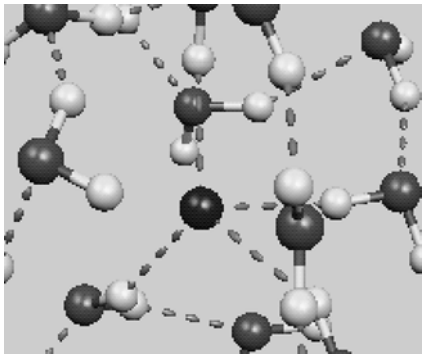
The host-guest complex of *C*-methyl resorcin[4]arene with coumarin and thiocoumarin has been characterised by single crystal X-ray diffraction technique. Structural analysis shows the host forms an infinitie nanotubular array in which the guest adopts a 'head to tail' arrangement of dimers held together by weak $\pi\ldots\pi$ interaction..



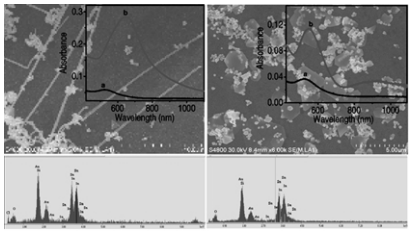
Following photoexcitation of 2,5-*bis*-(N-Methyl-N-1,3-Propdienylaniline)-cyclopentanone (MPAC), a ketocyanine dye, using 400 nm light, the molecule is excited to the S_2 state, which has a very short lifetime (0·5 ± 0·2 ps). In aprotic solvents, the S_1 state follows a complex multi-exponential relaxation dynamics consisting of torsional motion of the donor groups, solvent re-organization as well as photoisomerization processes. However, in alcoholic solvents, solvent re-organization via intermolecular hydrogen-bonding interaction is the major relaxation process observed in the S_1 state.

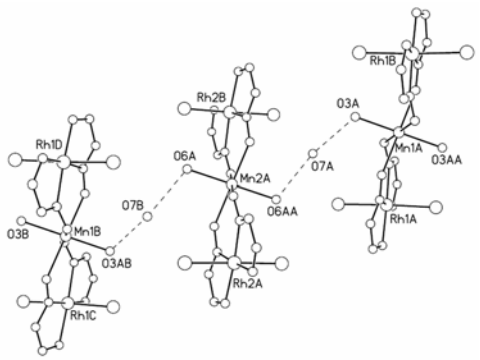


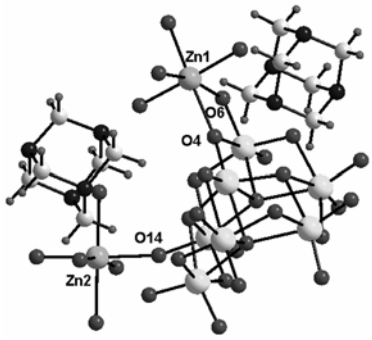
We report methodology for NMR quantum computing focusing on enhancing the efficiency of initialization, logic gate implementation and readout. Our strategy involves application of rotating frame pulse sequences to prepare pseudopure states and perform logic operations on homo- and hetero-nuclear spin systems. We also demonstrate a multiplexed 1D readout strategy.

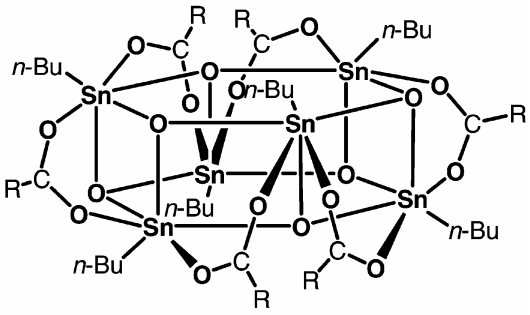


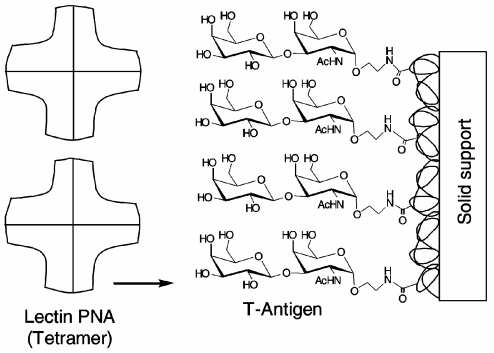
Molecular dynamics simulations of dilute and concentrated aqueous NaCl solutions are carried out to investigate the changes of the hydrogen bonded structures in the vicinity of ions for different ion concentrations. An analysis is made for the hydrogen bond distributions in the first and second salvation shells of the ions and also in the bulk water.

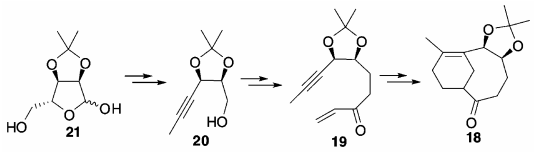


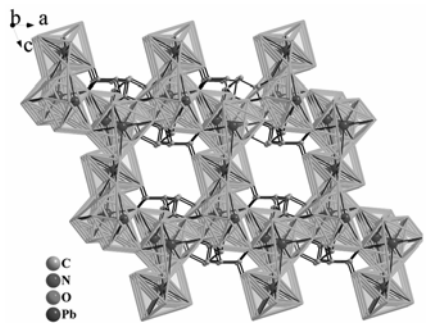












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