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Mesofractal Modeling in Organic Spintronics, Quantum Optics and Optical Engine

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Abstract

Mesoscopic modeling of complex system involves thermodynamic no equilibrium of discrete scaling. Electron exchange are related field of molecular magnetism and molecular" organic" spintronics. Furthers from quantum correlation on a chip retrieved quantum nonlinear optics with single photons enabled by strongly interacting atoms. Accompanied by mesofractals as development of meso and micro size fractal structures is required to mimic va rious biological systems for various functions. Showed through fluorapatite in gelatin-based nanocomposite, fractal in DNA knots driven by balance of fission and fusion in mtDNA/mitochondrial DNA mechanism, for optical engines for light energy detection described the Proportional Integral Derivative (PID)-controller set in microbial cells to HCCI/Homogeneous Charge Compression Ign ition in FTU Tokamak.

Keywords:* *Meso fractals; Molecular spintronics; Optical engine; Control system, PID

Introduction

Mesoscopic modeling of complex systems involves thermodynamics nonequilibrium of discrete scaling of entropy reduction+fluctuation, nonlinear dynamics and complexity of self-organized spatio-temporal structure. Electron exchange and electron- or photo-triggered electron exchange which are two central topics in related fields of molecular magnetism and molecular spintronics through control of an external (optical, redox and/or magnetic) properties in the use of several physics (spectroscopic, magnetic, electrochemical and/or photochemical) [1].

Quantum optics

Obeys analytical studies of common mechanism of previously named "spinterface" have been forecasted through "mesoscopic physics of electrons and photons" from E. Ackermans and Gilles Montambaux of e.g. the ability to control spin polarization coincides with electromechanical coupling effect between electric polarization and mechanical strain gradient (to mechanical disturbance that propagates in HF Olster, 1967) [2]. Furthers from quantum correlation on a chip those were retrieved quantum linear optics with single photons enabled by strongly interacting atoms provided by Peyrone. These was from John C. Ong [3] to concludes aboce subject to Alejandro Gonzalez-Tudeja and Diego Porras: Mesoscopic entanglement induced by spontaneous emmisions in solid-state quantum optics", physical review letters, 2013;110(8):080502.

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Mesofractal and exergy

Accompanied by mesofractals as “development of meso and micro size fractal structures is required to mimic various biological systems for various functions. Meso and micro sized fractal is fabricated by sevral process in engineering” Bharatbhushan S Kale and Kiran Bhole “Parametric analysis for forming meso fractals from nanoparticle seded resin in Helle-Shaw cell”, IOP Conf. Ser. 2019.
Where we have sought Davies and Tripathi Mechanical stress mechanisms in the cell”, MiniReview, flows and percolation accomplishes.”

New 7 renewable exergy industry explained by Wall and Banhatti:”Exergy-a useful concept for ecology and sustainability” of efficiency=1-[T(o)/T]: “the principles of sustainability to human activities ultimately must result in the scrutiny of all sectors of economic activity to assess the changes required to provide for a high quality of life for future generations.”

Discussion

Organic spintronics and PID

Refer to “Optical engines for light energy detection”, June 2012, p. 60 denote NewPort Corp’s OptoFlash is a miniature multichannel spectrometer engine that detects light energy at multiple wavelengths. According to NewPort, the demultiplexing optical engine is easy to customize with as many as ten wavelength channels. It measures 51 x 16 x 25 mm and weighs 30 g.

Involve the CFD/Computational Fluid Dynamics and HCCI/Homogeneous Charge Compression Ignition, ever defined whereas “ignition model engine” popularly known as a model device diesel engine [4], retrieved the “Laser Doppler Velocimetry/LDV” we intend to compare to Linear Variable Differential Transducer/LVDT includes sensor technology as well as to PVDF. polyvynilidine fluoride comprise giant fluxoelectric in α-phase of PVDF [5]. Further, we guided to properties depict by linear variable differential with PID/the Proportional Integral Derivative (PID)-controller are set in such a using test the best comparison between rising time, overshoot and setting time obtained in the motor response. The control system being used on FTU Plant is formed by a PXI EC-based platform Prof. Claudio Destri supervise to “Evaluations of the high density plasma heating through O-X2 mode conversion of EC-waves in FTU Tokamak”, 2009-2010.

Also offered the spintronics using of “PID-controller, from microbial cell to the motor response in plasma heating”, spintronics theirselve involved in the study of active control and manipulation of spin degrees of freedom in solid-state system, paved with good intentions, we comprise the “jellium model” to reflex action and primary process used by Id to avoid pains in painstakingly weight spin relaxation and dephasing are process that guides “equilibration” [6].

We intended to accomplish the HCCI quoted by Marcin Frackowiak’s dissertation 2009 just in two and three characters seems twin-compared homogeneous charge compression ignition viewed through ice cube document project held since Oct 11, 2001 ever concluded as “saw none” so they can be followed the ITER/International Thermonuclear Experiment Reactors to IFMIF/International Fusion Materials Irradiation Facilities.

Refer to University of Indonesia’s S29286.file, sought: “Magnetic quantum-dot cellular automata which is nonvolatile and lower power consist of nanomagnets. Since they are magnetically coupled, logic can be performed by switching an input nanomagnet which causes a chain reaction of switching on the other element in a domino fashion”-Angeline Klemm:” Fabrication of Magnetic Tunnel Junction-based Spintronic Devices”, 2010 NNIN REU Convocation, August 11-14, 2010. For disproportionation of H_2O_2 we also consider an electrokinetic mechanism they appear. So far, the more efficient micro/nanoscale motors are derived from biological systems- m. Schliwa (ed): “Molecular Motors”, 2003. Besdies, a control experiment using three stripped Au/Pt/Au rods with catalyzed the compositon of H_2O_2 are at similar rate”-Walter F. Paxton: “Catalytic Nanomotors”, JACS, 2004.

Conclusion

From a study of building meso fractals, the fractal and mesofractal application to organic spintronic if he related to PI(D) have been extended, at least ranging from DNA knots in mitochondrial fission and fusion mechanism, with some explanation to organic magnetism, quantum optics and optical engine.

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