

Rama Kant's Publications
(including talks and posters in conferences)

2009

In Journals

1. R. Kumar and R. Kant, *Generalized Warburg impedance on realistic self-affine fractals: Comparative study of statistically corrugated and isotropic roughness*, Submitted for Publication.
2. R. Kant and S. K. Jha, *Theory of Partial Diffusion-Limited Interfacial Transfer/Reaction on Realistic Fractals*, Submitted for Publication.

In Conference

- P1. S. K. Jha and R. Kant, *Theory of Anomalous Hydrogen Transport Through Hydride-forming Electrodes with Fractal Roughness (Poster)*, in abstracts **International Conference on Hydrogen and Hydrogen Storage: Methods and Materials**, 3-6 Jan. 2009, at Indian Institute of Science, Bangalore.

2008

In Journals

1. R. Kant, R. Kumar and V. K. Yadav, *J. Phys. Chem. C (Letters)*, **2008**, *112*, 4019-4023; *Theory of Anomalous Diffusion Impedance on Realistic Fractal Electrodes*.
(Impact factor (2006)=**4.115** (JPC B/C))
2. S. K. Jha, A. Sangal and R. Kant, *J. Electroanal. Chem.*, **2008**, *615*, 180-190; *Diffusion Controlled Potentiostatic Current Transients on Realistic Fractal Electrodes*.
(Impact factor (2006)=**2.339** , Citations (Scopus 2008) ≥ 1)
3. S. Bhandari, M. Deepa, S. Singh, G. Gupta and R. Kant; *Electrochimica Acta*, **2008**, *53*, 3189-3199; *Redox behavior and optical response of nanostructured poly(3,4-ethylenedioxythiophene) films grown in a camphorsulfonic acid based micellar solution*
(Impact factor (2006) =**2.955** , Citations (Scopus 2008) ≥ 3)
4. M. Deepa, S. Bhandari, M. Arora and R. Kant; *Macromolecular Chemistry and Physics*, **2008**, *209*, 137-149; *Electrochromic response of nanostructured poly(3,4-ethylenedioxythiophene) films grown in an aqueous micellar solution*
(Impact factor (2006) =**2.021**)
5. M. Deepa, S. Bhandari and R. Kant; *Electrochimica Acta*, **2008**, doi:10.1016/j.electacta.2008.09.010; *A comparison of charge transport behavior in functionalized and non-functionalized poly 3,4-(ethylenedioxythiophene)*
(Impact factor (2006) =**2.955**)

In Conference

- T1. R. Kant, *Theoretical Aspects of Supercapacitors: Nano-Structured and Disordered Interfaces* (**Talk**), in abstracts **International Conference on Electrochemical Power Systems**, 26-28 November 2008, Mascot Hotel, Thiruvananthapuram, Kerala, India.
- T2. R. Kant, *Theoretical Aspects of Nano-Structured and Disordered Electrodes* (**Invited Talk**), in abstracts **Future Directions in Advanced Material Research**, 16-19 April 2008 Shimla at Hotel Asia Dawn, Shimla.
- T3. R. Kant, *Generalization of Theories of Cottrell Current and Warburg Impedance for Realistic Fractal Electrodes* (**Invited Talk**), in abstracts **First DU-SDU Seminar on “Emerging Trends in Interfacial Areas of Chemical, Biological and Environmental Sciences”**, 17-18 March 2008, at University of Delhi, Delhi.
- T4. R. Kant, *Electrochemical Supercapacitors: Energy Storage Beyond Batteries*, 6th Dec. 2008, **Refresher Course in Physics & Electronics**, CPDHE and Department of Physics and Astrophysics, University of Delhi.
- P1. S. K. Jha and R. Kant, *Theory of Quasi-Reversible Charge Transfer Reaction on Realistic Self-Affine Fractal Electrodes* (**Poster**), in abstracts **10-th CRSI National Symposium in Chemistry**, 1-3 Feb. 2008, at Indian Institute of Science, Bangalore.
- P2. V.Shankar, P. Rastogi, R. Kant and A. K. Ganguli, *Universal Variation of Dielectric Behaviour Induced by Nanoscale Dopants in Dielectric Oxides: Evidence of Fractal Geometry* (**Poster**), in abstracts **10-th CRSI National Symposium in Chemistry**, 1-3 Feb. 2008, at Indian Institute of Science, Bangalore.
- P3. Shailendra K. Jha, Md. Merajul Islam and Rama Kant, *Statistical Theory for Diffusion-Limited Current on Realistic Fractal Electrodes* (**Poster**), **First DU-SDU Seminar on “Emerging Trends in Interfacial Areas of Chemical, Biological and Environmental Sciences”**, 17-18 March 2008, at University of Delhi, Delhi.
- P4. Rajesh Kumar, Birla S. Maibam and Rama Kant, *Statistical Theory for Gerischer Admittance on Realistic Self-Affine Fractal Electrodes* (**Poster**), **First DU-SDU Seminar on “Emerging Trends in Interfacial Areas of Chemical, Biological and Environmental Sciences”**, 17-18 March 2008, at University of Delhi, Delhi.

2007

In Journals

1. R. Kant and S. K. Jha, *J. Phys. Chem. C* (Letters), **2007**, *111*, 14040-14044; *Theory of anomalous diffusive reaction rates on realistic self-affine fractals. (Impact factor (2006) =4.115 (JPC B/C))*

2. S. Shenogin, **R. Kant**, R. C. Colby and S. K. Kumar, *Macromolecules*, **2007**, *40*, 5767-5775; Dynamics of Miscible Polymer Blends: Predicting the Dielectric Response.
(Impact factor (2006)=**4.277**)
3. R. K. Singh, J. Kumar, R. Singh, **R. Kant**, S. Chanda and V. Kumar, *Materials Chemistry and Physics*, **2007**, *104*, 390-396; Micromorphology, photo-physical and electrical properties of pristine and ferric chloride doped poly(3-hexylthiophene) films.
(Impact factor (2006) = 1.657)

In Conference

- T1. R. Kant, *Irregular Electrodes as Fractal and Their Electrochemical Responses (Invited Talk)*, in abstracts **National Covention of Electrochemistry**, 6 Dec. 2007, at IGCAR, Kalpakkam, Tamilnadu.
- T2. R. Kant, *Fractals in Electrochemistry, Refresher Course for College Teachers on 20-th Dec. 2007*, CPDHE and Department of Chemistry, University of Delhi.
- T3. R. Kant, *Irregular Electrodes as Fractals, Wednesday Talks of Department of Chemistry.*, 7 Nov. 2007, at Department of Chemistry, University of Delhi.
- T4. R. Kant, *Diffusion-Limited Reaction Rates on Random Fractal Electrodes (Invited Talk)*, **3rd Dynamic Day Delhi Meeting on Nonlinear Dynamics and Complex Systems**, 3 Nov. 2007, at School of Physical Sciences, Jawaharlal Nehru University, New Delhi.
- P1. R. Kumar, S. K. Jha, V. K. Yadav and R. Kant, *Theory of Diffusion Limited Impedance of Fractally Rough Electrodes (Poster)*, in abstracts **9-th CRSI National Symposium in Chemistry**, 1-4 Feb. 2007, at Department of Chemistry, University of Delhi, Delhi - 110007. "**Awarded Best Poster Award of the Symposium**"
- P2. V. Shanker, R. Kant and A. K. Ganguli; *Unusual dielectric behaviour induced by nanoscale dopants: Evidence of fractal geometry (Poster)*, in abstracts The NIMS Conference 2007 on "Recent Breakthroughs in Materials Science and Technology", July 11-13, 2007, Japan.
- P3. Shweta Bhandari, M.Deepa, S.T.Lakshmikummar, Rama Kant; *High performance viologen based electrochromic devices for smart windows (Poster)*, in abstracts Materials Research Society of India: 18th Annual general meeting. A theme symposium on "Materials for Energy Generation, Conservation and Storage". 12-14 February, 2007, NPL, N.Delhi.
- P4. Shweta Bhandari, S.T. Lakshmikummar, S. Ahmad, Rama Kant, M. Deepa; *Poly(3,4-ethylenedioxythiophene) films: Influence of sodium dodecyl phosphate on microstructure and electrochromic properties (Poster)*, in abstracts Second International Conference on Electroactive Polymer: Materials and Devices; 19-24 February, 2007, Goa.

In Journals

1. R. K. Singh, J. Kumar, R. Singh, **R. Kant**, R. C. Rastogi, S. Chand and V. Kumar, *New Journal of Physics*, **2006**, 8, 112; Structure-conductivity correlation in ferric chloride-doped poly(3-hexylthiophene).
(*IF*=**3.585**)

In Conference

- T1. R. Kant, *Complex Interfaces in Electrochemical Energy Systems*, **Refresher Course for College Teachers on 3rd Oct. 2006**, CPDHE and Department of Chemistry, University of Delhi.
- P1. D. Kumar and R. Kant, *Theory of Capacitive Behavior of Nanostructured Electrode/Electrolytes Interface (Poster)*, in abstracts **National Seminar on Multifunctional Nanomaterials, Nanostructures and Applications (MNNA 2006)**, 22-23 Dec. 2006, at Department of Physics & Astrophysics, University of Delhi, Delhi - 110007.
- P2. S. K. Jha, D. Kumar and R. Kant, *Effect of Fractal Roughness on the Potentiostatic Current Transients and Linear Sweep Voltammogram*, in abstracts **International Symposium on Advances in Electrochemical Science & Technology (ISAEST-8)**, 28-30 Nov., 2006, Goa, India.
- P3. Shweta Bhandari, M.Deepa, S.T. Lakshmikumar, Rama Kant; *Effect of annealing on structure, morphology and photoluminescent behavior of TiO₂ films (Poster)*, in abstracts National Seminar on Multifunctional Nanomaterials, Nanostructure and Applications. 22-23 December, 2006, Delhi University, N.Delhi.

2003-05

In Journals

- [1.] **R. Kant** and S. K. Rangarajan, *J. Electroanal. Chem.*, **2003**;552, 141; Effect of surface roughness on interfacial reaction-diffusion admittance.
(*Impact factor (2006)*=**2.339**, *Citations* ≥ 6)
- [2.] **R. Kant**, S. K. Kumar and R. H. Colby, *Macromolecules*, **2003**, 36, 10087-10094; What Length Scales Control the Dynamics of Miscible Polymer Blends?
(*Impact factor (2006)*=**4.277**, *Citations (SciFinder 2007)* ≥ 52)

In Conference

- [P1.] S. K. Jha and R. Kant, *EFFECT OF FRACTAL ROUGHNESS ON INTERFACIAL REACTIONS (Poster)*, **41-st Annual Convention of Chemists**, 23-27 Dec. 2004, Department of Chemistry, University of Delhi, Delhi - 110007.

[P2.] V. K. Yadav, D. Butani and R. Kant, *EFFECT OF FRACTAL ROUGHNESS ON IMPEDANCE (Poster)*, **41-st Annual Convention of Chemists**, 23-27 Dec. 2004, Department of Chemistry, University of Delhi, Delhi - 110007.

1989-2002

- [1.] **R. Kant** and S. K. Rangarajan, *J. Electroanal. Chem.*, **1989**, *265*, 39-65; Chronopotentiometry with power-law perturbation functions at an expanding plane electrode with and without a preceding blank period for systems with a coupled first-order homogeneous chemical reaction.
(*Impact factor (2006)*=**2.339**, *Citations(SciFinder 2007)* ≥ 5)
- [2.] **R. Kant** and S. K. Rangarajan, *J. Electroanal. Chem.*, **1990**, *277*, 19-43; Padé approach to potential transients: Part I. Electron transfer without and with coupling to first-order homogeneous reactions at planar electrodes.
(*Impact factor (2006)*=**2.339**, *Citations* ≥ 2)
- [3.] **R. Kant**, *Phys. Rev. Lett.*, **1993**, *70*, 4094-4097; Can current transients be affected by the morphology of the nonfractal electrode ?
(*Impact factor (2006)*=**7.072**, *Citations (SciFinder 2007)* ≥ 7)
- [4.] **R. Kant**, *J. Phys. Chem.*, **1994**, *98*, 1663-1667; Can one electrochemically measure the statistical morphology of a rough electrode ?
(*Impact factor* =**4.115** (*JPC B*), *Citations (Scopus 2007)* ≥ 4)
- [5.] **R. Kant** and S. K. Rangarajan, *J. Electroanal. Chem.*, **1994**, *368*, 1-21; Effect of surface roughness on diffusion-limited charge transfer.
(*Impact factor (2006)*=**2.339**, *Citations* ≥ 14)
- [6.] **R. Kant** and S. K. Rangarajan, *Trans. SAEEST*, **1994**, *29*, 216; Effect of surface roughness on the admittance analysis.
- [7.] **R. Kant** and S. K. Rangarajan, *J. Electroanal. Chem.*, **1995**, *396*, 285-301; Diffusion to rough interfaces: Finite charge transfer rates.
(*Impact factor (2006)*=**2.339**, *Citations* ≥ 13)
- [8.] **R. Kant**, *Phys. Rev. E.*, **1996**, *53*, 5749-5763; Statistics of approximately self-affine fractals: Random corrugated surface and time series.
(*Impact factor (2006)*=**2.438**, *Citations (Scopus 2007)* ≥ 12)
- [9.] C. Gay, P. -G. de Gennes and **R. Kant**, *Euro. Phys. Lett.*, **1996**, *34*, 581-586; Josephson droplets.
(*Impact factor (2006)*=**2.229**, *Citations (Scopus 2007)* ≥ 9)
- [10.] P. -G. de Gennes, M. Hébert and **R. Kant**, *Macromol. Symp.*, **1997**, *113*, 39; Artificial muscles based on nematic gels.
(*Impact factor* =**0.730**, *Citations (Scopus 2007)* ≥ 63)
- [11.] **R. Kant**, *J. Phys. Chem. B*, **1997**, *101*, 3781-3787; Diffusion-limited reaction rates on self-affine fractals.
(*Impact factor (2006)* =**4.115** (*JPC B*), *Citations (SciFinder 2007)* ≥ 11)

- [12.] M.Hébert, **R. Kant** and P.-G.de Gennes, *J. Phys. (I) France*, **1997**, 7, 909-919; Dynamics and thermodynamics of artificial muscles based on nematic gels. (*Impact factor =2.045*, *Citations (Scopus 2007) ≥ 41*)
- [13.] T. C. B. McLeish, J. Allgaier, D. K. Bick, G. Bishko, P. Biswas, R. Blackwell, B. Blottire, N. Clarke, B. Gibbs, D. J. Groves, A. Hakiki, R. K. Heenan, J. M. Johnson, **R. Kant**, D. J. Read, and R. N. Young, *Macromolecules*, **1999**, 32, 6734-6758; Dynamics of entangled H-polymers: Theory, rheology and neutron scattering. (*Impact factor (2006)=4.277*, *Citation (SciFinder 2007) ≥ 127*)
- [14.] P. Biswas, **R. Kant** and A. Blumen, *Macromol. Theory and Simul.*, **2000**, 9, 56; Polymer dynamics and topology: Extension of stars and dendrimers in external fields. (*Impact factor =1.312*, *Citations (Scopus 2007) ≥ 41*)
- [15.] **R. Kant**, P. Biswas and A. Blumen, *Macromol. Theory and Simul.*, **2000**, 9, 608-620; Hydrodynamic effects on the extension of stars and dendrimers in external fields. (*Impact factor =1.312*, *Citations (Scopus 2007) ≥ 17*)
- [16.] D.R. Daniels, T.C.B. McLeish, **R. Kant**, B.J. Crosby, R.N. Young, A. Pryke, J. Allgaier, R.J. Hawkins, *Rheol. Acta*, **2001**, 40, 403-415; Linear rheology of dilute linear, star and model long chain branched polymer melts. (*Impact factor =1.235*, *Citations (SciFinder 2007) ≥ 16*)
- [17.] P. Biswas, **R. Kant** and A. Blumen, *J. Chem. Phys.*, **2001**, 114, 2430; Stretch dynamics of flexible dendritic polymers in solution. (*Impact factor (2005)=3.138*, *Citations (Scopus 2007) ≥ 24*)
- [18.] S. Salaniwal, **R. Kant**, R. H. Colby and S. K. Kumar, *Macromolecules*, **2002**, 35, 9211-9218; Computer simulations of local concentration variations in miscible polymer blends. (*Impact factor (2006)=4.277*, *Citations (Scopus 2007) ≥ 23*)

Conference Presentations :

- [1.] S. K. Kumar, R. H. Colby and R. Kant, *Dynamics of miscible polymer blends*, in abstracts **Annual APS March Meeting 2003**, Mar 3 - 7, Austin, Texas.
- [2.] R. Kant, R. H. Colby and S. K. Kumar, *Effect of concentration fluctuations in miscible polymer blends*, in abstracts **Annual APS March Meeting 2002**, Mar 18 - 22, Indianapolis, Indiana.
- [3.] J. A. Pathak, R. Kant, S. K. Kumar and R. H. Colby, *Double reptation prediction of the linear viscoelasticity of melt miscible polymer blends*, in abstracts **3rd International Meeting of the Hellenic Society of Rheology**, June 10 - 14, **2001**, Patras, Greece.
- [4.] P. -G. de Gennes, M. Hébert and R. Kant, *Toward Artificial Muscles* , **Polymer Rheology Conference**, Cambridge, U.K., **1996**.

- [5.] R. Kant, *Effect of surface roughness on the diffusion-limited charge transfer* (self-affine corrugated surface fractals), **Bienvenue à la Seizième Rencontre de Physique Statistique de Paris**, 25-26th Jan **1996** , E. S. P. C. I., Paris.
- [6.] R. Kant, P. -G. De Gennes and M. Hébert, *Artificial Muscles based on Nematic Gels*, **Discussion Group Meeting on Novel Liquid Crystals** with special reference to transition metal discotics and smectics, 8-10 Jan. **1997**, S. N. Bose Centre for Basic Sciences, Calcutta, India.
- [7.] R. Kant, *Diffusion-limited reaction rates at self-affine surface fractals*, **Discussion meeting on Theoretical Chemistry**, 5-8 Dec. **1996**, School of Chemical Sciences, Mahatma Gandhi University, Kottayam, Kerala, India.
- [8.] R. Kant and S.K. Rangarajan, *Inversion of current-potential equation*, **National Seminar on Electrodeics**, 23-25 July **1988**, CECRI, Karaikudi, India.
- [9.] R. Kant and S.K. Rangarajan, *Chronopotentiometry with power law functions at DME with and without preceding blank period*, **National Seminar on Electrodeics**, 23-25 July **1988**, CECRI, Karaikudi, India.

Conference Presentations : Posters

- [1.] R. Kant, T. C. B. McLeish, D. J. Groves, *Linear Rheology of H-polymers*, **Partners in Rheology**, 16-18-th Dec. **1998**, Ilkley, West Yorkshire, U.K.
- [2.] R. Kant, O. Harlen, T. C. B. McLeish, *Spin Line Stability : Draw-Resonance in Geisekus Model*, **Technology Foresight Challenge Project Meeting**, 9-th Nov. **1998**, Univ. of Leeds, U.K.
- [3.] R. Kant, *Statistics of Approximately Self-Affine Fractals*, **Dynamics of Complex Systems**, 6-11th Aug. **1995**, S. N. Bose Institute for Basic Sciences, Calcutta, India.
- [4.] R. Kant and S. K. Rangarajan, *Effect of Surface Roughness on the Admittance Analysis*, **Fifth International Symposium on Advances in Electrochemical Science & Technology**, 24-26 Nov. **1994**, Madras, India.