

Curriculum Vitae

Dr. Supriya Chakrabarti

Qualification: Ph.D. (Materials Science)

Designation: Scientist



1 Contact Information

Center for Carbon Materials, ARCI, Hyderabad

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2 Relevant Professional Experience

- 2017 (September) – till now
Scientist at ARCI, Hyderabad, India
- 2015 (December) – 2017 (August)
Research Associate at Ulster University, UK
Project: Advanced Nanotube Application and Manufacturing Initiative (ANAM)-
Cambridge University and Ulster University funded by EPSRC
- 2015 (March) – 2015 (December)
Postdoctoral fellow at University of RomaTre, Italy
Project: Bridging high strength and dissipation in carbon nanotube (CNT) composites
funded by AFOSR, USA
- 2011 (January) – 2015 (February)
R&D Manager at iHawk Solution, India
Project: CVD equipment development and CNT based structural material development
- 2008 (February) – 2010 (April)
Postdoctoral fellow at University of Cincinnati, USA
Project: Growth of vertically aligned mm long carbon nanotubes using thermal catalytic
Chemical Vapor Deposition technique and optimization of CNT density to make high
strength CNT yarns.
- 2007 (May) – 2008 (February)
Postdoctoral fellow at University of Dayton, USA
Project: Structural evaluation of super long carbon nanotubes using electrochemical
characterization and Raman spectroscopy.

- 2005 (July) – 2007 (March)
Postdoctoral fellow at Osaka Science & Technology Center, Japan
Project: Creating Nanocarbon Application Technology funded by Japan science and technology agency.
- 2004 (October) – 2005 (June)
Postdoctoral fellow at Osaka Prefecture University, Japan
Project: Development of field emission device using vertically aligned carbon nanotubes grown by CVD technique.

3 Educational qualifications

- 2000 – 2004
PhD, Material Science Dept., Indian Association for The Cultivation of Science, Kolkata
Thesis Supervisors: Prof. Subhadra Chaudhuri (Late) and Dr. Dibyendu Ganguli
PhD Thesis: **Preparation and Characterization of Some Sol-Gel Derived Oxide Films**
- 1998 – 2000
Master of Science in Physics, Jadavpur University, Kolkata
- 1995 – 1998
Bachelor of Science (Physics Honours), Jadavpur University, Kolkata

List of Publications

An updated list of publication (**Total Number is 43**) is available on my Google Scholar page at the following location:

<http://scholar.google.co.in/citations?user=9cZ8UW8AAAAJ&hl=en>

Patent

Patent Title: Process for producing carbon nanostructure and gas for carbon nanostructure production

Inventors: Supriya Chakrabarti, Yoshikazu Nakayama, Lujun Pan, Takeshi Nagasaka, Toru Sakai,

Publication date: 2008/1/18, **Patent office:** WO, **Patent number:** 2008007750

4 Important Conferences Attended:

- MRS Fall 2017 & CSCST 2017
- Invited speaker 231st ECS conference, 2017 at New Orleans, USA
- Poster presentation at International Conference on Plasmas with Liquids (ICPL 2017), Prague, Czech Republic, 5th-9th March 2017
- Invited speaker RAPID WROKSHOP, 2016 at VITO, Belgium

- Poster presentation at The Japan Carbon Fiber Manufacturers Association, 20th Composite Material Seminar, Japan, 2007
- Oral presentation at the 4th Korea-Japan Symposium, Japan, 2006.
- Poster presentation at the NT06: Seventh International Conference on the Science and Application of Nanotubes, Nagano, Japan, June 2006.
- Oral presentation at the IDW/AD'05 "12th International Display Workshops in conjunction with Asia Display 2005", Japan, December 2005.
- Poster presentation at the 29th Fullerene-Nanotubes General Symposium 2005; Japan 2005.
- Poster presentation at the International conference on nanoscience and technology; Kolkata, India December 2003.
- Poster presentation at the National Conference of Nano-Materials; Kolkata, India, March 2003
- Poster presentation at the Conference "India and Abroad- III: A Conference on Condensed Matter Physics" Kolkata, India, January 2003.
- Poster presentation at the National Conference "Frontier Research on Advanced Matter Physics" Kolkata, India, 2002.

5 Awards and Honors:

- Received **NEDO** (New Energy and Industrial Technology Development Organization) fellowship of Japan.
- Received **ICTP** (International Center for Theoretical Physics) fellowship of Italy.
- Received **National Renewable Energy Fellowship** for progressing research work.
- Received **Best Poster Award** in the "Synthesize and Characterization" category in the National Conference of Nano-Materials, 6-7 th march 2003 organized by W. B. A. S. T and M. R. S. I.
- Elected as **Distinguished Referee** for the Journal; Applied Physics Letter and Journal of Applied Physics, www.aip.org and many more

6 Research Experience and Skills:

6.1 Technical Writing

Project proposal and report writing for funding agencies like DAE, NSF and AFOSR.

6.2 Equipment Setup

CVD Equipment development for growing super long cm long vertically aligned single wall and multi wall carbon nanotubes on different substrates (Designed and developed in Japan and USA)

Setup of floating catalyst based CVD process equipment development for spinning/winding continuous carbon nanotube fiber and mat (Developed in UK)

Development of high vacuum field emission measurement setup for Carbon nanotubes and other nanostructure materials (Designed and developed in Japan)

Development of atmospheric pressure plasma setup in gas phase and liquid phase for synthesizing and surface modifications of quantum confined nano-materials. (Developed in UK)

6.3 Expertise

Materials dealt with: Carbon Nanotubes, Graphene, Semiconducting (II-VI) oxide and sulphide thin films, Magnetic nanoparticles, Oxide nano-composites, One-dimensional and two-dimensional nanostructures (II-VI and III-V semiconducting nanowires, nanoribbons etc.).

Synthesis techniques: RF and DC sputtering, Electron beam evaporation, Chemical vapor deposition (CVD), Plasma enhanced chemical vapor deposition (PECVD), Vapor-Liquid-Solid technique, Sol-Gel technique and Wet Chemical synthesis technique.

Materials and Device Characterization techniques:

- Scanning Electron Microscopy (FESEM and ESEM), High-Resolution Transmission Electron Microscopy (HRTEM), EELS (Electron energy loss spectroscopy), Atomic Force Microscopy (AFM) and Optical Microscopy.
- UV-VIS-NIR Spectrophotometry, FTIR, Optical Infrared Spectroscopy, Photoluminescence, Electroluminescence and Photoconductivity.
- Micro-Raman Spectroscopy, X-ray Diffraction, Differential Scanning Calorimetry (DSC), Thermogravimetric Analysis (TGA).
- Low-temperature (4K) Mössbauer Spectroscopy, Magnetization Measurements, Low-temperature (4K) Electron Paramagnetic Resonance Spectroscopy (EPR) and a. c. susceptibility measurements.
- Field-emission measurement, IV characterization, 4-probe electrical conductivity and CV measurements of electronic components.
- Solar simulator and EQE (External quantum efficiency)

Device Fabrication techniques:

- About four years clean room processing experience in Japan and USA.
- Electron-beam lithography, Photolithography, Step-And-Scan Lithography, Mask Making.
- Dry Etching using Plasma Etching (RIE), Deep Silicon Etching and Wet Etching.
- Metrology Tools, Wet Chemical Etching of III-V compounds, silicon dioxide, silicon nitride.
- Thin Film Deposition, Metal Deposition, Rapid Thermal Annealing, and Wire bonding.
- Multilayer solar cell fabrication.

List of Journal Publications:



Supriya Chakrabarti

Nanotechnology
Semiconducting Oxide Nanostructures
Carbon Nanotubes
Graphene
Nanomedicine

	All	Since 2012
Citations	1572	789
h-index	24	16
i10-index	33	27

TITLE	CITED BY	YEAR
<p>Electrochemistry at carbon nanotube electrodes: Is the nanotube tip more active than the sidewall? K Gong, S Chakrabarti, L Dai Angewandte Chemie International Edition 47 (29), 5446-5450</p>	145	2008
<p>Number of walls controlled synthesis of millimeter-long vertically aligned brushlike carbon nanotubes S Chakrabarti, H Kume, L Pan, T Nagasaka, Y Nakayama The Journal of Physical Chemistry C 111 (5), 1929-1934</p>	120	2007
<p>Optical and field emission properties of ZnO nanorod arrays synthesized on zinc foils by the solvothermal route A Dev, S Kar, S Chakrabarti, S Chaudhuri Nanotechnology 17 (5), 1533</p>	108	2006
<p>Surfactant-assisted route to synthesize well-aligned ZnO nanorod arrays on sol-gel-derived ZnO thin films A Dev, SK Panda, S Kar, S Chakrabarti, S Chaudhuri The Journal of Physical Chemistry B 110 (29), 14266-14272</p>	91	2006
<p>Growth of super long aligned brush-like carbon nanotubes S Chakrabarti, T Nagasaka, Y Yoshikawa, L Pan, Y Nakayama Japanese journal of applied physics 45 (7L), L720</p>	85	2006
<p>Direct synthesis of ZnO nanowire arrays on Zn foil by a simple thermal evaporation process T Ghoshal, S Biswas, S Kar, A Dev, S Chakrabarti, S Chaudhuri Nanotechnology 19 (6), 065606</p>	74	2008
<p>Tailoring of room temperature excitonic luminescence in sol-gel zinc oxide-silica nanocomposite films S Chakrabarti, D Das, D Ganguli, S Chaudhuri Thin Solid Films 441 (1), 228-237</p>	74	2003
<p>Optical properties of γ-Fe₂O₃ nanoparticles dispersed on sol-gel silica spheres S Chakrabarti, D Ganguli, S Chaudhuri Physica E: Low-dimensional Systems and Nanostructures 24 (3), 333-342</p>	64	2004
<p>Substrate dependence of preferred orientation in sol-gel-derived zinc oxide films S Chakrabarti, D Ganguli, S Chaudhuri Materials letters 58 (30), 3952-3957</p>	61	2004

TITLE	CITED BY	YEAR
ZnS nanowire arrays: synthesis, optical and field emission properties S Biswas, T Ghoshal, S Kar, S Chakrabarti, S Chaudhuri Crystal Growth and Design 8 (7), 2171-2176	54	2008
Structural evaluation along the nanotube length for super-long vertically aligned double-walled carbon nanotube arrays S Chakrabarti, K Gong, L Dai The Journal of Physical Chemistry C 112 (22), 8136-8139	54	2008
Photoluminescence of ZnO nanocrystallites confined in sol-gel silica matrix S Chakrabarti, D Ganguli, S Chaudhuri Journal of Physics D: Applied Physics 36 (2), 146	54	2002
Spinning yarn from long carbon nanotube arrays C Jayasinghe, S Chakrabarti, MJ Schulz, V Shanov Journal of Materials Research 26 (05), 645-651	47	2011
Morphology dependent field emission from In₂O₃ nanostructures S Kar, S Chakrabarti, S Chaudhuri Nanotechnology 17 (12), 3058	46	2006
Cobalt doped γ-Fe₂O₃ nanoparticles: synthesis and magnetic properties S Chakrabarti, SK Mandal, S Chaudhuri Nanotechnology 16 (4), 506	45	2005
Optical and microstructural characterization of CdS-ZnO nanocomposite thin films prepared by sol-gel technique SK Panda, S Chakrabarti, B Satpati, PV Satyam, S Chaudhuri Journal of Physics D: Applied Physics 37 (4), 628	42	2004
Synthesis of β-Ga₂O₃ nanowire from elemental Ga metal and its photoluminescence study P Guha, S Chakrabarti, S Chaudhuri Physica E: Low-dimensional Systems and Nanostructures 23 (1), 81-85	37	2004
Excitonic and defect related transitions in ZnO-SiO₂ nanocomposites synthesized by sol-gel technique S Chakrabarti, D Ganguli, S Chaudhuri physica status solidi (a) 201 (9), 2134-2142	34	2004
Nanotube responsive materials C Jayasinghe, W Li, Y Song, JL Abot, VN Shanov, S Fialkova, ... MRS bulletin 35 (09), 682-692	32	2010
Fabrication of GaN nanowires and nanoribbons by a catalyst assisted vapor-liquid-solid process S Biswas, S Kar, T Ghoshal, VD Ashok, S Chakrabarti, S Chaudhuri Materials research bulletin 42 (3), 428-436	30	2007
Enhancement of UV luminescence in sol-gel prepared ZnO thin films by incorporation of Mg S Chakrabarti, S Kar, A Dev, S Chaudhuri physica status solidi (a) 202 (3), 441-448	28	2005

TITLE	CITED BY	YEAR
Growth of aligned multiwalled carbon nanotubes on bulk copper substrates by chemical vapor deposition G Li, S Chakrabarti, M Schulz, V Shanov Journal of Materials Research 24 (09), 2813-2820	27	2009
Optical transmission and photoluminescence studies of ZnO–MgO nanocomposite thin films S Das, S Chakrabarti, S Chaudhuri Journal of Physics D: Applied Physics 38 (22), 4021	27	2005
Positron annihilation lifetime changes across the structural phase transition in nanocrystalline Fe₂O₃ S Chakrabarti, S Chaudhuri, PMG Nambissan Physical Review B 71 (6), 064105	25	2005
Microstructural and photoluminescent characterization of one-dimensional ZnO nanostructures prepared by catalyst-assisted vapour–liquid–solid technique S Chakrabarti, S Chaudhuri Materials chemistry and physics 87 (1), 196-200	23	2004
Preparation of hydroxide-free magnesium oxide films by an alkoxide-free sol–gel technique S Chakrabarti, D Ganguli, S Chaudhuri Materials Letters 57 (29), 4483-4492	20	2003
Effect of MgO coating on field emission of a stand-alone carbon nanotube L Pan, Y Konishi, H Tanaka, S Chakrabarti, S Hokushin, S Akita, ... Journal of Vacuum Science & Technology B 25 (5), 1581-1583	18	2007
Stable field emission property of patterned MgO coated carbon nanotube arrays S Chakrabarti, L Pan, H Tanaka, S Hokushin, Y Nakayama Japanese Journal of Applied Physics 46 (7R), 4364	18	2007
Synthesis of γ-Fe₂O₃ nanoparticles coated on silica spheres: Structural and magnetic properties S Chakrabarti, SK Mandal, BK Nath, D Das, D Ganguli, S Chaudhuri The European Physical Journal B-Condensed Matter and Complex Systems 34 (2 ...	18	2003
Synthesis of γ-Fe₂O₃ nanoparticles coated on silica spheres: Structural and magnetic properties S Chakrabarti, SK Mandal, BK Nath, D Das, D Ganguli, S Chaudhuri The European Physical Journal B-Condensed Matter and Complex Systems 34 (2 ...	18	2003
The effect of substrate positions in chemical vapor deposition reactor on the growth of carbon nanotube arrays G Li, S Chakrabarti, M Schulz, V Shanov Carbon 48 (7), 2111-2115	17	2010
Crystalline magnesium oxide films on soda lime glass by sol–gel processing S Chakrabarti, D Ganguli, S Chaudhuri, AK Pal Materials Letters 54 (2), 120-123	17	2002

TITLE	CITED BY	YEAR
<p>Vertically aligned double-walled carbon nanotube electrode prepared by transfer methodology for electric double layer capacitor</p> <p>Y Honda, M Takeshige, H Shiozaki, T Kitamura, K Yoshikawa, ... Journal of Power Sources 185 (2), 1580-1584</p>	15	2008
<p>Electrochemistry at Carbon Nanotube Electrodes: Is the Nanotube Tip More Active Than the Sidewall? This work was supported financially by WBI (PIA FA8652-03-3...</p> <p>K Gong, S Chakrabarti, L Dai Angewandte Chemie-German Edition 120 (29), 5526</p>	11	2008
<p>Optical properties of Mg0.05Zn0.95O/SiO2 nanocomposite films prepared by sol-gel technique</p> <p>A Dev, S Chakrabarti, S Kar, S Chaudhuri Journal of Nanoparticle Research 7 (2-3), 195-201</p>	8	2005
<p>Structure and Optical Properties of Carbon Nanoparticles Generated by Laser Treatment of Graphite in Liquids</p> <p>PDM Natalie Tarasenko, Dr. Aleksandr Stupak, Prof. Dr. Nikolai Tarasenko, Dr ... Chem Phys Chem 18</p>	2 *	2017
<p>Photoluminescence and Raman Study of CdSAI2O3 Nanocomposite Films Prepared by SolGel Techniques</p> <p>SK Panda, S Chakrabarti, A Ganguly, S Chaudhuri Journal of nanoscience and nanotechnology 5 (3), 459-465</p>	1	2005
<p>SYNTHESIS OF SILICON CARBIDE NANOPARTICLES BY PLASMA-ASSISTED TECHNIQUES IN LIQUIDS</p> <p>NN Tarasenko, AA Nevar, AV Butsen, NV Tarasenko, NV Rzhetski, ... Physics, Chemistry and Application of Nanostructures: Reviews and Short ...</p>		2017
<p>PROCESS FOR PRODUCING CARBON NANOSTRUCTURE AND GAS FOR CARBON NANOSTRUCTURE PRODUCTION</p> <p>S CHAKRABARTI, Y NAKAYAMA, L PAN, T NAGASAKA, T SAKAI WO Patent 2,008,007,750</p>		2008
<p>über umlagerungs-reaktionen in der kohlenhydrat-gruppe, iv. mitteil.: zur kinetik der umlagerung der 3-acetyl-monoaceton-glucose</p> <p>K Gong, S Chakrabarti, L Dai Berichte der deutschen chemischen Gesellschaft (A and B Series)</p>		2006
<p>Synthesis and Characterization of Sol-Gel Derived Cu Doped ZnO Films</p> <p>S Ray, S Chakrabarti, S Bhattacharya, S Chaudhuri Transactions of the Indian Ceramic Society 64 (3), 133-136</p>		2005
<p>Field Emission Properties of MgO Coated Multiwalled Aligned CNTs</p> <p>S CHAKRABARTI, L PAN, H TANAKA, Y NAKAYAMA Proc Int Disp Workshops 2, 1667-1670</p>		2005

TITLE	CITED BY	YEAR
Structure, structural phase transitions, mechanical properties, defects-Positron annihilation lifetime changes across the structural phase transition in nanocrystalline... S Chakrabarti, S Chaudhuri, PMG Nambissan Physical Review-Section B-Condensed Matter 71 (6), 64105-64105		2005
; Effect of MgO coating on the field emission property of aligned multiwalled carbon nanotubes S CHAKRABARTI, L PAN, H TANAKA, Y NAKAYAMA Abstracts. Fullerene, Nanotubes General Symposium 29, 193		2005
Structural and magnetic properties of gamma-Fe₂O₃ nanoparticles coated on silica spheres S Chakrabarti, D Ganguli, SK Mandal, S Chaudhuri INDIAN JOURNAL OF PHYSICS AND PROCEEDINGS OF THE INDIAN ASSOCIATION FOR THE ...		2004
POSITIONS EFFECT IN A CVD REACTOR ON THE GROWTH OF ALIGNED CARBON NANOTUBES V Shanov, G Li, S Chakrabarti, M Schulz		
Luminescence in Sol-Gel Derived ZnO/SiO₂ and ZnO/Al₂O₃ Nanocomposite Films S Chakrabarti, D Ganguli, S Chaudhuri		