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#### Personal Details

Gender	: Female
Date of Birth	: November 18, 1985
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Marital Status	: Married
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#### Research experience-Post Ph. D.

**Post-doctoral fellow** (August 2015-Jan, 2019), Department of Chemistry, Ben-Gurion University of the Negev, Beer Sheva, Israel.

**Project title:** “Carbon-dots as bio-sensors and white light emitting diode”.

**Supervisor:** Professor Raz Jelinek.

#### Education

**Ph.D. in Chemistry** (2010-2015), Department of Chemistry, University of Calcutta, Kolkata, India.

**Thesis Title:** “*Syntheses, Crystal Structures, Supramolecular Interactions and Magnetic Properties of 3d and 3d-s/p/f Molecular Assemblies*” (Ph.D.degree awarded on 6<sup>th</sup> July, 2015).

**Supervisor:** Professor Sasankasekhar Mohanta.

**Master of Science (M.Sc.) in Chemistry** (2007-2009) passed with **1<sup>st</sup> class** (65.7%) from Presidency College, University of Calcutta, Kolkata, India.

**Project Title:** “*Kinetics of Reduction and Acid Hydrolysis of Potassium Trioxalatocobaltate(III)*”.

**Supervisor:** Professor Snigdha Ganguli.

**Bachelor of Science (B.Sc.) in Chemistry (Honours)** (2004-2007) passed with **1<sup>st</sup> class** (60.0%) from St. Pauls’ Cathedral Mission College (Degree provided by the University of Calcutta), Kolkata, India.

**Higher Secondary in Science** (2002-2004) passed with **1<sup>st</sup> division** (69.2%) from West Bengal Council of Higher Secondary Education.

**Secondary Education** (2002) passed with **1<sup>st</sup> division** (75.0%) from West Bengal Board of Secondary Education.

### **Professional Competence**

1. During my post-doctoral experiences, I got training for syntheses and characterization of carbon nanomaterials (C-dot). I have utilised different analytical and spectroscopic techniques such as Fluorescence microscopy, Nuclear magnetic resonance spectroscopy (400 and 500 MHz), Circular dichroism (CD), Spinning disc confocal microscopy (CLSM), Scanning electron microscopy (SEM), Image stream, Zeta potential, and Dynamic light scattering. I have also gained knowledge to analyse the data from rheological experiments. I have also expertise in culturing different gram positive and gram negative bacteria, HeLa and macrophage cells. Currently I have prepared a white light emitting diode from different color emitting fluorescent C-dot gels. Now I am learning to prepare giant unilamellar vesicles with C-dot conjugated lipid for cellular membrane applications. I have to learned to analyse High Resolution Transmission Electron Microscopy data (HR-TEM), Energy Dispersive X-ray Spectroscopy (EDX), Atomic Force Microscopy data (AFM), X-ray Photoelectron Spectroscopy (XPS), Scanning Electron Microscopy data (SEM) and Powder X-ray Diffraction (PXRD) results. I have passed the theoretical course held by university (by Prof. Maya Bar-Sadan) for being trained in any microscopes. I have monitored three undergraduate students in Prof. Jelinek's laboratory and submitted three papers as second author (two of them were accepted).
2. During my Ph.D. work, I was trained for the syntheses and characterizations of several organic and inorganic molecules. I worked with different analytical and spectroscopic techniques such as Single Crystal X-ray Diffraction, FT-Infra Red, Ultra Violet-Visible Spectroscopy, Fluorescence Spectroscopy, Cyclic Voltammetry, Magnetic susceptibility measurements, Thermogravimetric analysis. I also have experience of MassLynx V4.0, software used for Mass Spectrometry. I have collected and solved over **100** inorganic crystals data. In four of my papers I am the sole crystallographer (*Inorg. Chim. Acta*, **2016**; *Dalton Trans.*, **2014**; *CrystEngComm*, **2013**; *Polyhedron*, **2013**). I have also helped first authors to finalize the crystal structures to published form and co-authored in two papers (*Chemistry select*, **2017**; *Inorg. Chim. Acta*, **2016**).
3. I have proficiency in various software packages such as Windows, MS Office, Chem Draw, Mercury, ORTEP, Endnote Plus, Adobe Photoshop, Graphpad Prism5 and Origin. All softwares related to crystallography (APEX, SHELXTL, XSHLL, PLATON, WINGX) and all softwares related to structural analyses (XP in SHELXTL, DIAMOND, MERCURY). I have solved the structures of ~100 crystals. In three of my papers, I have done all the crystal structure determination and analyses including the drawing of the crystal.

### **Teaching Experiences**

1. Taught undergraduate students in the Behala College, University of Calcutta, November, **2009**-January **2010**
2. Taught undergraduate students in the Techno India College of Technology, West Bengal University of Technology, August-December **2009**

### ResearchInterests

1. Supramolecular Chemistry
2. Crystallography
3. Carbon nano materials
4. Bio-sensor and receptor development
5. Self healing materials
6. White light emitting diodes

### Major Collaborations

1. X-ray Crystallography, Dr. Thomas Weyhermueller (*Max-Planck-Institut für Chemische Energiekonversion, Stiftstr 34-36, 45470 Mülheim an der Ruhr, Germany*), Dr. Hazel A. Sparkes and Prof. Judith A. K. Howard (*Institut für Anorganische Chemie und Analytische Chemie, Johannes-Gutenberg, Universität Mainz, Duesbergweg 10-14, D-55128 Mainz, Germany*).
2. Variable-temperature magnetic susceptibility measurements, Dr. Luca Carrella and Prof. Eva Rentschler (*Institut für Anorganische Chemie und Analytische Chemie, Johannes-Gutenberg, Universität Mainz, Duesbergweg 10-14, D-55128 Mainz, Germany*).
3. Density Functional Theory (DFT) Calculation Dr. Gopalan Rajaraman (*Department of Chemistry, Indian Institute of Technology Bombay, Powai, Mumbai 400076, India*).
4. Cell culture and cellular property studies with Prof. Angel Porgador (*The Shraga Segal Department of Microbiology, Immunology and Genetics, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer Sheva, Israel*).
5. White light emitting diode preapartion with Prof. Rafi Sikler (*Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beer Sheva, Israel*).

### Scholastic Achievements

- Awarded **Ph.D. (Sc.) in Chemistry** on 6<sup>th</sup> July, 2015 from University of Calcutta, India.
- Awarded Senior Research Fellowship **02.03.2012-31.03.2015** (Human Resource Development Group-Council of Scientific and Industrial Research (CSIR), Government of India)
- Awarded Junior Research Fellowship **02.03.2010-01.03.2012** (Human Resource Development Group-Council of Scientific and Industrial Research (CSIR), Government of India)
- Qualified in Graduate Aptitude Test in Engineering (GATE), Chemistry, **2009**
- Qualified in the National Eligibility Test (CSIR and UGC, Govt. of India), (All India Rank **183**), **2009**
- Awarded “Young Scientist Award” in Symposium on “Acharya Prafulla Chandra Ray Memorial Symposium on Chemistry & Industry, India (**2013**)”

## List of Publications

I have a total of **17** articles in international journals. Of these I am first author of **10** and second author in **6** and third author in **1** article **Manuscript Published:**

1. Elastic carbon dot/polymer films for fluorescent tensile sensing and mechano-optical tuning  
N. Shauloff, **S. Bhattacharya** and R. Jelinek, *Carbon* 2019, **152**, 363-371. (**Impact Factor 7.47, Citation 1**)  
<https://www.sciencedirect.com/science/article/pii/S0008622319305998>
2. Crystallization-Induced Emissive Invisible Ink  
N. Zerby, O. Malka, <sup>#</sup> **S. Bhattacharya**, <sup>#</sup> N. N. Kadamannil, M. Baranov and R. Jelinek, *Adv. Opt. Mat.* 2019, **7**, 1900232 (**Impact Factor 7.43**)  
<sup>#</sup> equal contribution  
<https://onlinelibrary.wiley.com/doi/10.1002/adom.201900232>
3. Fluorescent Self-Healing Carbon Dot / Polymer Gels  
**S. Bhattacharya**, R. Phatake, S. N. Barnea, N. Zerby, J. Zhu, R. Shikler, N. G. Lemcoff and R. Jelinek, *ACS Nano*. 2019, **13**, 1433-1442. (**Impact Factor 13.903, Citation 11**)  
<https://pubs.acs.org/doi/10.1021/acsnano.8b07087>
4. Selective labeling and growth inhibition of *Pseudomonas aeruginosa* by aminoguanidine carbon dots  
G. Otis, **S. Bhattacharya**, O. Malka, S. Kolusheva, P. Bolel, A. Porgador and R. Jelinek, *ACS Infect. Dis.* 2019, **5**, 292-302. (**Impact Factor 4.911, Citation 4**)  
<https://pubs.acs.org/doi/10.1021/acsinfecdis.8b00270>
5. Nitric oxide sensing through azo-dye formation on carbon dots  
**S. Bhattacharya**, R. Sarkar, B. Chakraborty, A. Porgador and R. Jelinek, *ACS Sens.* 2017, **2**, 1215-1224. (**Impact Factor 6.944, Citation 16**).  
<https://pubs-acsc-org.ezproxy.bgu.ac.il/doi/abs/10.1021/acssensors.7b00356>
6. Detection of reactive oxygen species by a carbon-dot–ascorbic acid hydrogel  
**S. Bhattacharya**, R. Sarkar, S. Nandi, A. Porgador and R. Jelinek, *Anal. Chem.* 2017, **89**, 830-836. (**Impact Factor 6.35, Citation 22**)  
<https://pubs-acsc-org.ezproxy.bgu.ac.il/doi/abs/10.1021/acs.analchem.6b03749>
7. Carbon-dot–hydrogel for enzyme-mediated bacterial detection  
**S. Bhattacharya**, S. Nandi and R. Jelinek, *RSC Adv.*, 2017, **7**, 588-594. (**Impact Factor 3.049, Citation 21**)  
<https://pubs.rsc.org/en/content/articlehtml/2017/ra/c6ra25148j>
8. Syntheses, crystal structures and photophysical aspects of discrete and polymeric azido-bridged Zinc(II) and Cadmium(II) complexes: sensing properties and structural resemblance  
S. Roy, **S. Bhattacharya** and S. Mohanta, *Chemistry Select*, 2017, **2**, 11091-11099. (**Impact Factor = 1.505, Citation 5**)  
<https://onlinelibrary.wiley.com/doi/full/10.1002/slct.201701944>

9. Heterometallic copper(II)–lead(II), nickel(II)–lead(II) copper(II)–indium(III) compounds derived from an acyclic double-compartment Schiff base ligand  
**S. Bhattacharya** and S. Mohanta, *Inorg. Chim. Acta*, 2015, **432**, 169-175. (**Impact Factor 2.433, Citation 14**)  
<https://www.sciencedirect.com/science/article/pii/S0020169315001905>
  
10. Syntheses, crystal structures and magnetic properties of a series of  $\mu$ -phenoxo- $\mu$ 1,1-carboxylato- $\mu_{1,3}$ -carboxylato trinickel(II) compounds  
**S. Bhattacharya**, S. Sasmal, L. Carrella, E. Rentschler and S. Mohanta, *Dalton Trans.*, 2014, **43**, 12065-12076. (**Impact Factor 4.052, Citation 4**)  
<https://pubs.rsc.org/en/content/articlehtml/2014/dt/c4dt00862f>
  
11. Crystal structure and magnetic properties of a hexacopper(II)-based azide-bridged one-dimensional coordination polymer: A new pattern of azide-bridged network  
S. Sasmal, P. Chakraborty, **S. Bhattacharya**, N. Aliaga-Alcalde and S. Mohanta, *Polyhedron*, 2014, **73**, 67-71. (**Impact Factor 2.284, Citation 9**)  
<https://www.sciencedirect.com/science/article/pii/S0277538714000953>
  
12. Syntheses, structures, magnetic properties and density functional theoretical magneto-structural correlations of bis( $\mu$ -phenoxo) and bis( $\mu$ -phenoxo)- $\mu$ -acetate/bis( $\mu$ -phenoxo)-bis( $\mu$ -acetate) dinuclear  $\text{Fe}^{\text{III}}\text{Ni}^{\text{II}}$  compounds  
S. Hazra, **S. Bhattacharya**, M. K. Singh, L. Carrella, E. Rentschler, T. Weyhermueller, G. Rajaraman and S. Mohanta, *Inorg. Chem.*, 2013, **52**, 12881-12892. (**Impact Factor 4.85, Citation 35**)  
<https://pubs-acsc-org.ezproxy.bgu.ac.il/doi/abs/10.1021/ic400345w>
  
13. Crystal structures of discrete, one-dimensional and cocrystalline copper(II)–uranyl(VI) systems: Influence of the reactant ratio in the competition between hydrogen bonds and coordinate bonds  
**S. Bhattacharya**, A. Jana and S. Mohanta, *CrystEngComm*, 2013, **15**, 10374-10382. (**Impact Factor 3.382, Citation 28**)  
<https://pubs.rsc.org/en/content/articlehtml/2013/ce/c3ce41625a>
  
14. Diaquadinitratouranyl(VI) enforces the  $\text{O}(\text{phenoxo})_2\text{O}(\text{methoxy})_2$  compartment of 3-methoxysalicylaldehyde-diamine ligands to interact with water molecules  
**S. Bhattacharya**, A. Jana, M. Fleck and S. Mohanta, *Inorg. Chim. Acta*, 2013, **405**, 196-202. (**Impact Factor 2.433, Citation 13**)  
<https://www.sciencedirect.com/science/article/pii/S0020169313002909>
  
15. Syntheses, crystal structures and spectroscopy of di/tri/tetranuclear discrete and cocrystalline copper(II)– $\text{Na}^{\text{I}}/\text{Zn}^{\text{II}}/\text{Cd}^{\text{II}}$  complexes derived from a compartmental ligand: Inconsistency in the shifting of copper(II) d–d band  
**S. Bhattacharya**, A. Jana and S. Mohanta, *Polyhedron*, 2013, **62**, 234-242. (**Impact Factor 2.284, Citation 17**)  
<https://www.sciencedirect.com/science/article/pii/S0277538713005007>
  
16. First examples of 3d-uranium compounds derived from single-compartment Schiff base ligands: Syntheses, crystal structures and d–d band correlation

L. Mandal, **S. Bhattacharya** and S. Mohanta, *Inorg. Chim. Acta*, 2013, **406**, 87-94. (**Impact Factor 2.433, Citation 15**)

<https://www.sciencedirect.com/science/article/pii/S0020169313003836>

17. Bis(nitrate)diaquauranyl(VI) synthon to generate  $[1 \times 2 + 1 \times 1]$  and  $[1 \times 1 + 1 \times 1]$  cocrystalized 3d...5f self-assemblies

**S. Bhattacharya**, S. Mondal, S. Sasmal, H. A. Sparkes, J. A. K. Howard, M. Nayak and S. Mohanta, *CrystEngComm*, 2011, **13**, 1029-1036. (**Impact Factor 3.382, Citation 36**)

<https://pubs.rsc.org/en/content/articlehtml/2011/ce/c0ce00332h>

#### **Patent applications:**

1. Fluorescent self-healing gel from carbon dots.  
**S. Bhattacharya** and R. Jelinek, Under US Provisional patent Application 62/745,479. Filed on 15/10/2018.
2. Carbon dots which selectively kill and label Gram-negative bacteria.  
G. Otis, **S. Bhattacharya** and R. Jelinek, Under US Provisional patent Application 62/755,490. Filed on 04/11/2018.

#### **Manuscript Under preparation:**

1. Synthesis, Crystal Structure and Magnetic Properties of End-to-End Azide Bridged  $Ni^{II}_4$  Cyclic Cluster.  
Bhattacharya, S., Sasmal, S., Aliaga-Alcalde, N., Mohanta, S.\*

#### **Book Under preparation:**

1. NO Sensing.  
Bhattacharya, S., Chakraborty, B. S., Samanta, Pan Stanford Publishing.

#### **Conférences and Présentations**

1. Poster Presentation: "Fluorescent self-healing carbon dot gels" in International Conference in honor of Prof. Dan Meyerstein's 80<sup>th</sup> birthday, Israel Chemical Society and Ariel University, Ariel, Israel (October 3-4<sup>th</sup>, 2018).
2. Poster Presentation: "Nitric oxide sensing through azo-dye formation on carbon dots" in 83<sup>rd</sup> Annual Meeting of the Israel Chemical Society, Tel-aviv, Israel (February 13-14, 2018).
3. **Oral presentation:** "Nitric oxide sensing through azo-dye formation on carbon dots" on III International Symposium on Nanoparticles/Nanomaterials and Applications in Caparica, Portugal (January 22-25, 2018).
4. Poster Presentation: "Bimodal nitric oxide sensing through azo-dye formation on carbon dots" in 35<sup>th</sup> Israel Vacuum Society Annual Meeting, Weizmann institute, Israel (September 10<sup>th</sup>, 2017).

5. Poster Presentation: "Detection of reactive oxygen species by a carbon-dot-ascorbic acid hydrogel" in Nanoscience and Nanotechnology at Interfaces, Israel Institute of Advanced Studies, Jerusalem, Israel (April 2-5, 2017).
6. Poster Presentation: "Highly sensitive C-dot embedded ascorbic acid hydro gel for ROS sensing" in 34<sup>th</sup> Israel Vacuum Society Annual Meeting, Ben-Gurion University of the Negev, Beer-sheva, Israel (September 12<sup>th</sup>, 2016).
7. Participated in the 3rd Solar Fuels I-Core Workshop (Ben-Gurion University of the Negev, Weizmann Institute of Science and Technion-Israel Institute of Technology) (September 12-15<sup>th</sup>, 2016).
8. Poster Presentation: "Syntheses, crystal structures and spectroscopic correlation of discrete, one-dimensional and cocrystalline Cu(II)/Ni(II)-U(VI) systems derived from Schiff base ligands" in 16<sup>th</sup> CRSI National Symposium in Chemistry (NSC-16), Indian Institute Technology Bombay, Mumbai, India (February 7-9, 2014).
9. Participated in the International Conference on Structural Chemistry of Molecules and Materials (SCOMM-2014), The Royal Society of Chemistry, University of Calcutta, IISER Kolkata, Jadavpur University, Kolkata, India (November 30<sup>th</sup>-December 2<sup>nd</sup>, 2014).
10. **Oral Presentation:** "Syntheses, crystal structures and spectroscopic correlation of copper(II)-Na<sup>I</sup>/Zn<sup>II</sup>/Cd<sup>II</sup>/U<sup>VI</sup> complexes derived from Schiff base ligands" on Acharya Prafulla Chandra Ray Memorial Symposium on Chemistry & Industry (2013). Indian Chemical Society, University of Calcutta (August 2013).
11. **Oral Presentation:** "Syntheses, Crystal Structures, Supramolecular Interactions and Magnetic Properties of 3d and 3d-s/p/f Molecular Assemblies" on the seminar held by Department of Chemistry, University of Calcutta, India (September 25<sup>th</sup>, 2014).
12. Participated in the International Symposium on Molecular Organisation and Complexity: A Chemical Perspective, University of Calcutta, India (February 6-8, 2013).
13. Participated in the National Conference on "Modern Trends of Chemistry in the 21<sup>st</sup> Century", St. Pauls' Cathedral Mission College, Kolkata, India (February 6-7, 2012).
14. Participated in the Symposium on Modern Trends in Inorganic Chemistry-XIV (MTIC-XIV), School of Chemistry, University of Hyderabad, Hyderabad, India (December 10-13, 2011).
15. Participated in the International Symposium on Facets of Weak Interactions in Chemistry, Department of Chemistry, University of Calcutta, India (January 13-15, 2011).
16. Participated in the National Symposium on Current Trends in Chemical Research, Ramakrishna Mission Residential College and Dinabandhu Andrews College, India (June 24, 2011).
17. Participated in the National Seminar on Acharya Prafulla Chandra Ray Memorial Symposium on Chemistry Today (2010), Indian Chemical Society, University of Calcutta (August 2010).

## References

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