Proforma for information to be provided by the Teaching Staff

1. **Name :** **SATYEN SAHA**

2. **Designation:** Associate Professor

3. **Academic Qualifications:**

Sr.	Degree	Institution	Year
1	Madhyamik	West Bengal Board of Secondary Education	1989
2	Higher Secondary	West Bengal Council of Higher Secondary Education	1991
3	B.Sc. (H)	Jadavpur University, Kolkata	1994
4	M.Sc.	Jadavpur University, Kolkata	1996
5	Ph.D.	University of Hyderabad, Hyderabad	April, 2002
7.	Post doctoral studies	1. University of Tokyo, Tokyo, Japan. 2. Georgetown University, Washington DC, USA.	May 2002 – June 2006

4. **Areas of Interest:** My research group is focused on several wide ranges of topics, such as 1) Structural chemistry, 2) Physical-organic chemistry, 3) Photophysics and photochemistry of organic and inorganic molecules/complexes, 4) High Energy Density material, 5) NIR emitting materials, and 6) Ionic liquids.

5. **Contact Information:**

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6. **Projects Undertaken as PI: 06** (DST, DRDO, CSIR)

7. **Awards/ Recognitions:**
   a) Recipient of DST–DAAD(Germany) fellowship for an exchange program (1999).
   b) Best Lecture award (Ph.D. presentation) in Pune University Workshop on Radiation and Photochemistry (PUWORP-2002).
   c) Japan Society for the Promotion of Science (JSPS) Post doctoral fellowship (October 2002 to September 2004)
   d) Recipient of Best Teacher (chemical science) award from 'Chemical Research Society of India', Bangalore on Feb. 2013.
   e) Vice-Chancellor's Award for Excellence in research for 2014 given by BHU on 26/03/2014.

f) Best Poster award in MHS-2014 during 7th- 8th August 2014 organized by IJAA (India)-JSPS (Japan) and AERB, Govt India at Chennai.
g) Awarded JSPS Bridge fellowship 2014 on May 20, 2014.

8. List of 10 major Publications in last 5 years:

i. "Molecular Packing Dependent Solid State Fluorescence Response of Supramolecular Metal−Organic Frameworks: Phenoxo-Bridged Trinuclear Zn(II) Centered Schiff Base Complexes with Halides and Pseudohalides", Dwivedi, N.; Sunkari, S.; Verma, A.; Saha, S*. **Cryst. Growth & Des.** (**2018**), in press, DOI: 10.1021/acs.cgd.8b00948.
ii. "Evidence of C---F-P and Aromatic π---F-P Weak Interactions in Imidazolium Ionic Liquids and Its Consequences" by S K Panja, N Srivastava, J Srivastava, N Eswara Prasad, H Noothalapati, S Shigeto, Satyen Saha*, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy,** 194, (2018), 117-125.
iii. "NIR Luminescent Heterodinuclear [ZnII LnIII] Complexes: Synthesis, Crystal Structures and Photophysical properties" N. Dwivedi, S K Panja A Verma, T Takaya, K Iwata, S S. Sunkari, Satyen Saha*, J. Luminescence. (2017), 192, 156-165.
iv. "Microscopic Solvation Environments in a Prototype Room-temperature Ionic Liquid as Elucidated by Resonance Raman Spectroscopy of Iodine and Bromine" Satyen Saha, H Okajima, O Homma, and H Hamaguchi, Spectrochemica Acta: Part A, (2017), 176 (5), 79-82. http://dx.doi.org/10.1016/j.saa.2016.12.015. **(cover page)**
v. "Manipulating Proton Transfer Process in Molecular Complexes: Synthesis and Spectroscopic Studies" S K Panja, N Dwivedi, and Satyen Saha,* **Phys Chem Chem Phys,** (**2016**), DOI: 10.1039/C6CP03797F.
vi. "Anion Directed Structural Diversity in Zinc Complexes with conformationally Flexible Quinazoline Ligand: Structural, Spectral and Theoretical Studies", N Dwivedi, S K Panja, Monika, Satyen Saha,* S. S. Sunkari, **Dalton Transactions**, (2016), DOI: 10.1039/C6DT02139E.
vii. "First Report of Application of Simple Molecular Complexes as Organo-Catalyst for Knoevenagel Condensation", S K Panja, N Dwivedi and Satyen Saha*, **RSC Advances**, (2015), 5, 65526 – 65531.
viii. "Significance of Weak Interactions in Imidazolium picrate Ionic Liquids: Spectroscopic and Theoretical Studies for Molecular Level Understanding", S K Panja, N Dwivedi, H Noothalapati, S Shigeto, A. K. Sikder, A Saha, S S. Sunkari and Satyen Saha*, **Phys Chem Chem Phys,** (**2015**), 17, 18167- 18177.
ix. "Unravelling the heterogeneity in N Butyl-N-methylpiperidinium Trifluro methanesulfonimide ionic liquid by 1D and 2D NMR Spectroscopy" N Tripathi and S Saha*, **Chem. Phys. Lett.,** (2014), 607, 57 – 63.
x. "Anticancer therapeutic potential of quinazoline based small molecules via global upregulation of miRNAs" S. Nahar, D. Bose S. K. Panja,, S. Maiti*. and Satyen Saha* **Chem. Commun**., (2014)**, 50, 4639.**

9. **Additional Information/ Achievements:** i) More than 60 delivered lectures out of which about 20 are in abroad, ii) delivered 6 hours lectures on fluorescence in a QIP for teachers in IIT-Kanpur, iii) delivered lectures/experimental demonstrations for school children on various platforms, including INSPIRE, iv) scientific sessions chair, v) editorial board members for Spectro. Chem. Acta, Part A (Elsevier publisher), vi) Editor: Concord, news letter for JSPS Indian Alumni, vii) organized several conferences (ICAST, RAMS etc), lecture workshops (INSA workshops).

10. **Full List of Publications:**

1. "Molecular Packing Dependent Solid State Fluorescence Response of Supramolecular Metal−Organic Frameworks: Phenoxo-Bridged Trinuclear Zn(II) Centered Schiff Base Complexes with Halides and Pseudohalides", Dwivedi, N.; Sunkari, S.; Verma, A.; Saha, S*. **Cryst. Growth Des. (2018)**, in press, DOI: 10.1021/acs.cgd.8b00948.

2. "Evidence of C---F-P and Aromatic π---F-P Weak Interactions in Imidazolium Ionic Liquids and Its Consequences" by S K Panja, N Srivastava, J Srivastava, N Eswara Prasad, H Noothalapati, S Shigeto, Satyen Saha*, **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 194, (**2018**), 117-125.

3. "Structure and dynamics of ionic liquids: general discussion" (2018). Structure and dynamics of ionic liquids: general discussion. Faraday Discussions. . 10.1039/C7FD90092A.

4. "Microheterogeneity in imidazolium and piperidinium cation-based ionic liquids: 1D and 2D NMR studies" S K Panja and Satyen Saha*, **Magnetic Resonance in Chemistry** 56 (**2018**) 95–102. (special issue on Ionic Liquids).

5. "NIR Luminescent Heterodinuclear [ZnII LnIII] Complexes: Synthesis, Crystal Structures and Photophysical properties" N. Dwivedi, S K Panja A Verma, T Takaya, K Iwata, S S. Sunkari, Satyen Saha*, **J. Luminescence**. (**2017**), 192, 156-165.

6. "Microscopic Solvation Environments in a Prototype Room-temperature Ionic Liquid as Elucidated by Resonance Raman Spectroscopy of Iodine and Bromine" Satyen Saha, H Okajima, O Homma, and H Hamaguchi, **Spectrochemica Acta: Part A**, (2017), 176 (5), 79-82. http://dx.doi.org/10.1016/j.saa.2016.12.015. (cover page)

7. "Tuning the Intramolecular Charge Transfer (ICT) Process in Push-Pull Systems: Effect of Nitro group" S K Panja, N Dwivedi, and Satyen Saha,* **RSC Advances**, **(2016**), 6, 105786-105794.

8. "Manipulating Proton Transfer Process in Molecular Complexes: Synthesis and Spectroscopic Studies" S K Panja, N Dwivedi, and Satyen Saha,* **Phys Chem Chem Phys,** (**2016**), DOI: 10.1039/C6CP03797F.
9. "Anion Directed Structural Diversity in Zinc Complexes with conformationally Flexible Quinazoline Ligand: Structural, Spectral and Theoretical Studies", N Dwivedi, S K Panja, Monika, Satyen Saha,* S. S. Sunkari, **Dalton Transactions**, (2016), DOI: 10.1039/C6DT02139E.

10. "Highly Stable Naphthalene Core Based Novel Cleft-shaped Strain Molecule: Influence of Intermolecular H- Bonding Architectures" S K Panja, N Dwivedi and Satyen Saha*, **RSC Advances**, (**2016)**, 6, 59574-59581.

11. "Complementing Crystallography with Ultralow-Frequency Raman Spectroscopy: Structural Insights into Nitrile-Functionalized Ionic Liquids" H K Chen, N Srivastava, **Satyen Saha** and . S Shigeto, **Chem Phys Chem, (2016), 17, 93 – 97** DOI: 10.1002/cphc.201500866.

12. "First Report of Application of Simple Molecular Complexes as Organo-Catalyst for Knoevenagel Condensation", S K Panja, N Dwivedi and Satyen Saha*, **RSC Advances**, (2015), 5, 65526 – 65531.

13. "Significance of Weak Interactions in Imidazolium picrate Ionic Liq-uids: Spectroscopic and Theoretical Studies for Molecular Level Understanding", S K Panja, N Dwivedi, H Noothalapati, S Shigeto, A. K. Sikder, A Saha, S S. Sunkari and Satyen Saha*, **Phys Chem Chem Phys,** (**2015**), 17, 18167-18177.

14. "Ferrocenyl–cymantrenyl hetero-bimetallic chalcones: Synthesis, structure and biological properties", S Mishra, V Tirkey, A Ghosh, H R Dash, S Das, M Shukla, Satyen Saha, S M Mobin, S Chatterjee, **J Molecular Structure** (2015) 1085 162–172.

15. "Importance of weak interactions and conformational equilibrium in N-butyl-N-methylpiperidinium bis(trifluromethanesulfonyl) imide room temperature ionic liquids: Vibrational and theoretical studies", Madhulata Shukla, Hemanth Noothalapati, Shinsuke Shigeto, Satyen Saha*, **Vibrational Spectroscopy**, (2014) 75, 107-117.

16. "Unravelling the heterogeneity in N Butyl-N-methylpiperidinium Trifluro methanesulfonimide ionic liquid by 1D and 2D NMR Spectroscopy" N Tripathi and S Saha*, **Chem. Phys. Lett.,** (2014), 607, 57 – 63.

17. "Chain of dimers to assembly of trimers: Temperature and ligand influenced formation of novel supramolecular assemblies of Cu(II) with isomeric (aminomethyl) pyridines and azide." S. S. Sunkari, B Kharediya, Satyen Saha, Bahjat Elrez,J-P Sutter, **New J Chemistry**, (2014) 38, 3529-3539.

18. "Anticancer therapeutic potential of quinazoline based small molecules via global upregulation of miRNAs" S. Nahar, D. Bose S. K. Panja, S. Maiti*. and Satyen Saha* **Chem. Commun**., (2014)**, 50, 4639.**

19. Influence of Metal to Ligand Molar Ratios on the Supramolecular Structure Formation of Cu(II) with diaminopropane and Iodide: Synthesis, Structure, Spectroscopic and DFT Studies. B. Kharediya, Madhulata Shukla, Satyen Saha, and S Sunkari, **J. Mol. Structure,** (2014) 1062, 158-166.

20. Synthesis of mono- and bi-metallic dithiocarboxylate-alkyne complexes from sunlight driven insertion reaction and their antibacterial activity, S. K. Patel, V. Tirkey, S. Mishra, H. R. Dash, S. Das, Madhulata Shukla, Satyen Saha, S. M. Mobin, S. Chatterjee, **J. Organometallic Chemistry** (2014), 749 75-82.

21. "Recyclable, Magnetic Ionic Liquid bmim[FeCl4] catalyzed Multicomponent, Solvent-free, Green Synthesis of Quinazolines" S. K. Panja and S. Saha*, **RSC Advances,** (2013), 3, 14495-14500.

22. "Relationship between stabilization energy and thermophysical properties of different imidazolium ionic liquids: DFT studies", M. Shukla, S. Saha*, **Computational and Theoretical Chemistry**, (2013),1015, 27–33.

23. "5-[{(2-Hydroxynaphthalen-1-yl)methylene}amino]pyrmidine-2,4(1H,3H)-dione as Al^{3+} selective colorimetric and fluorescent chemosensor" V.P.Singh, K. Tiwari, M. Mishra, N. Srivastava, S. Saha, **Sensors and Actuators B**, (2013), 182, 546–554.

24. "Water Square (uudd) in Novel CuII Framework Structures Built from Isomeric (Aminomethyl)pyridines and Oxalate: Synthesis, Structure, Spectral and DFT Studies", M. Shukla, B. Kharediya, N. Srivastava, S. Saha* and S. Sunkari*, **Polyhedron,** (2013) 54, 164-172.

25. "I_2- Catalyzed three-component protocol for the synthesis of quinazolines", Sumit Kumar Panja, Nidhi Dwivedi, Satyen Saha*, **Tetrahedron Letters**, (2012), 53, 6167-6172.

26. Heteroleptic Dipyrrinato Complexes Containing 5-Ferrocenyldipyrromethene and Dithiocarbamates as Coligands: Selective Chromogenic and Redox Probes", R. K. Gupta, R. Pandey, R. Singh, N.Srivastava, B. Maiti, Satyen Saha, P. Li, Q. Xu, D. S. Pandey, **Inorg. Chem.,** (2012), 51, 8916–8930.

27. "Investigation of Ground State Charge Transfer Complex between Paracetamol and p-Chloranil through DFT and UV-visible studies", Madhulata Shukla, Nitin Srivastava, Satyen Saha*, **J. Molecular Structure**, (2012). 1021, 153-157.

28. "Synthesis and Study of the Properties of Stereocontrolled Poly(N-isopropylacrylamide) Gel and Its Linear Homopolymer Prepared in the Presence of $Y(OTf)_3$ Lewis Acid: Effect of the Composition of Methanol-Water Mixtures as Synthesis Medium", Biswas, Chandra Sekhar; Vishwakarma, Niraj; Patel, Vijay; Mishra, Avnish; **Saha, Satyen**; Ray, Biswajit. **Langmuir**, 2012,28 (17), 7014-7022.

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32. Synthesis, structure, UV-visible-IR spectra, magnetism and theoretical studies on CuII[(2-aminomethyl)pyridine](thiocyanate)2 and comparisons with an analogous CuII complex. M. Shukla, N. Srivastava, Satyen Saha, T. R. Rao, and S. S. Sunkari, **Polyhedron (**2011), 30, 754.
33. Theoretical and spectroscopic studies of 1-butyl-3- methyl imidazolium iodide room temperature ionic liquid: Its differences with chloride and

bromide derivatives. M. Shukla, N. Srivastava and Satyen Saha*, ***J. Mol. Struct. (2010), 975, 349-356.***

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35. Synthesis and Characterization of Stereocontrolled Poly-(N-isopropylacrylamide) Hydrogel Prepared in the Presence of Y(OTf)3 Lewis Acid, C. Biswas, V. K. Patel, N. K. Vishwakarma, A. K. Mishra, S. Saha, and B. Ray, ***Langmuir*** (2010), 26, 6775–6782.
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38. Charge Resonance Character in Charge Transfer State of Bianthryls: Effect of Symmetry Breaking on Time-Resolved Near-IR Absorption Spectra, T. Takaya, S. Saha, H. Hamaguchi, M. Sarkar, A. Samanta, and K. Iwata, ***J. Phys. Chem., B. (letters)*** 110, (2006), 4291.

39. Effect of Water on the Molecular Structure and Arrangement of Nitrile-Functionalized Ionic Liquids, S. Saha and Hiro-o Hamaguchi, ***J. Phys. Chem., B.*** 110, (2006) 2777.

40. Solvation dynamics in room temperature ionic liquids: Dynamic Stokes shift studies of fluorescence of dipolar molecules, P. K. Mandal, S. Saha, R. Karmakar and A. Samanta, ***Current Science***, 90, (2006), 301.

41. A New Class of Magnetic Fluids: bmim[$FeCl_4$] and nbmim[$FeCl_4$] Ionic Liquids. S. Hayashi, S. Saha and H. Hamaguchi, ***IEEE Transactions on Magnetics***, 42, (2006), 12.

42. Solvation Dynamics of Nile Red in a Room Temperature ionic liquid using streak camera. S. Saha, P. K. Mandal and A. Samanta, ***Phys. Chem. Chem. Phys.,*** 6, (2004) 3106.

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45. Singlet Excited State Dipole Moments of Dual Fluorescent *N*-Phenylpyrroles and 4-(Dimethylamino)Benzonitrile from Solvatochromic and Thermochromic Spectral Shifts, T. Yoshihara, V. A. Galievsky, S. I. Druzhinin, S. Saha and K. A. Zachariasse, ***Photochem. Photobiol. Sci.,*** 2, (2003), 342.

46. Influence of the Structure of the Amino Group and Polarity of the Medium on The Photophysical Behavior of 4-Amino-1,8-Naphthalimide Derivatives, S. Saha and A. Samanta, ***J. Phys. Chem. A,*** 106 **(**2002) 4763.

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48. Excited State Structure of N-(4-Cyanophenyl)carbazole by Time-Resolved Infrared Absorption Spectroscopy, A. Samanta, S. Saha and H. Ishikawa, Hiro-o Hamaguchi, ***Chem. Lett.*** **(2002)**, 340.

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51. Fluorescence Signalling of Transition Metal Ions by Multi-Component Systems Comprising 4-Chloro-1,8-Naphthalimide as Fluorophore, B. Ramachandram, N. B. Sankaran, R. Karmakar, S. Saha and A. Samanta, ***Tetrahedron***, 56 (**2000**) 7041.

52. The Twisted Structure of 9-(4-Cyanophenyl)carbazole, S. Saha and A. Samanta, ***Acta Cryst.*** C55 (**1999**) 1299.

53. First Simultaneous Estimates of the Water Pool Core Size and the Interfacial Thickness of a Cationic Water in Oil Microemulsion by Combined Use of the Chemical Trapping and the Time-Resolved Fluorescence Quenching, P. K. Das, A. Chaudhuri, S. Saha and A. Samanta, ***Langmuir***, 15 (**1999**) 4765.

54. The Fluorescence Response of a Structurally modified 4-Aminophthalimide Derivative Covalently Attached to a Fatty Acid in Homogeneous and Micellar Environment, G. Saroja, B. Ramachandram, S. Saha and A. Samanta, ***J. Phys. Chem. B***103 (**1999**) 2906.

55. 4-Heptamethyleneimino-7-nitrobenzo-2-oxa-1,3-diazole, S. Saha and A. Samanta, ***Acta Cryst. C***55 (**1999**) 252.

56. Photophysical and Dynamic NMR Studies on 4-Amino-7-nitrobenz-2-oxa-1,3-diazole Derivatives : Elucidation of The Nonradiative Deactivation Pathway, S. Saha and A. Samanta***, J. Phys. Chem. A***102 (**1998**) 7903.

Articles/Chapters Published in Books:

I. "Raman spectroscopy and heterogeneous liquid structure in ionic liquids", Satyen Saha, T. Hiroi, H. Hamaguchi, edited by Ken Seddon and Robin Rogers,; **"Ionic Liquids (Further) COILed"** Wiley Interscience, Germany, **ISBN-10**: 1118438639; **ISBN-13**: 978-1118438633.

II. "A comparative study of Piperidinium and Imidazolium based Ionic Liquids: Thermal, Spectroscopic and Theoretical Studies", Madhulata Shukla and Satyen Saha, edited by Jun-ichi Kadokawa. (2012), in **"Ionic Liquids - New Aspects for the Future"**, Publisher: INTECH, University Campus, Rijeka, Croatia. **ISBN**: 980-953-307-626-8

III. "Interactions and Transitions in Imidazolium Cation Based Ionic Liquids", Madhulata Shukla, Nitin Srivastava and Satyen Saha, edited by Scott T

Handy. (October 2011), in **"Ionic Liquids - Classes and Properties",** Publisher: InTech open access publisher. **ISBN:** 978-953-307-634-8.

IV. "Raman and X-Ray Studies on the Structure Of [bmim]X (X= Cl, Br, I, [BF_4], [PF_6]): Rotational Isomerism of the [Bmim] Cation" H. Hamaguchi, Satyen Saha, R. Ozawa, in **"Ionic Liquids IIIA: Fundamentals, Progress, Challenges, and Opportunities"** (2005), pp. 68-78. Publisher: American Chemical Society. **ISBN:** 9780841238930.

V. Efficient Synthetic Protocol and Mechanistic Study of Quinazoline Analogues and their Biological Importance, by Sumit Kumar Panja and Satyen Saha*, in **Advances in Organic Chemistry**, Vol. 9, 121-146, 2018, Edited by Atta-ur Rahaman, Benthem Publishers.

VI. "Photophysics and Photochemistry of Conformationally Restricted Triarylmethanes: Application as Photoredox Catalysts" by Sankalan Mondal, Satyen Saha." in "**Photochemistry and Photophysics: Fundamentals to Applications"** published by IntechOpen publisher, London.

Book editor:

1. **Molecular Photochemistry - Various Aspects, (ISBN 978-953-51-0446-9),** edited by Dr. Satyen Saha (containing 12 chapters); InTechOpen, London, March, 2012. The permanent web address: http://www.intechopen.com/books/molecular-photochemistry-various-aspects.

2. **Photochemistry and Photophysics: Fundamentals to Applications" (ISBN 978-1-78923-783-2)** edited by Dr. Satyen Saha, (containing 11 chapters) published by IntechOpen publisher, London., August 2018. The permanent weblink: https://mts.intechopen.com/booksprocess/aboutthebook/chapter/145619/book/6650

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