

Curriculum Vitae

Dr. Krishnendu Aich (M.Sc., Ph.D.)

Department: Chemistry

Designation: SACT-I

Specialization: Organic Chemistry

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➤ **Research Interest:**

- Organic Synthesis
- Design and Synthesis of Fluorescence Probe for the Detection of Metal Ions, Anions, Reactive Oxygen Species, Nerve Gas Agents Stimulants and Other Environmentally Hazardous Species
- Synthesis of Aggregation Induced Emission (AIE) Dyes and their Applications in Live-Cell Imaging
- Design and Synthesis of Stimuli Responsive Solid State Emissive Dyes

➤ **Teaching Experience:**

- Sammilani Mahavidyalaya, Baghajatin Colony, Kolkata, West Bengal – 700094 (September 2018 – Current)

➤ **Research Experience:**

- **Ph.D.:** Indian Institute of Engineering Science and Technology, Shibpur, India. (January 2010 – February 2016)

Supervisor: Dr. Shyamaprosad Goswami

Title of Thesis: Design and synthesis of fluorescence sensors for important biological substrates including ions

- **Post-Doctoral Research Fellow (N-PDF):** Jadavpur University, India. (February 2016 – February 2018)

Funding agency: DST-SERB

Supervisor: Dr. Tapan Kumar Mondal

Area of research: Development of novel optical and electrochemical sensors for the recognition of hazardous metal ions and anions

➤ **Publications:**

Sl. No.	Authors	Title	Name of Journal	Vol./ Page No./ Year	ISSN No.
1.	A. Maji, A. Biswas, A. Das, S. Gharami, K. Aich , T. K. Mondal	A novel carbazole-benzothiazole-based chemodosimeter for the chromogenic and fluorogenic recognition of CN^-	New Journal of Chemistry	47, 11557 – 11564, 2023	1144-0546
2.	L. Patra, K. Aich , S. Gharami, T. K. Mondal	Fabrication of a new fluorogenic probe for detection of phosgene in solution and vapor phase	Sensors and Actuators B: Chemical	326, 128837, 2021	0925-4005
3.	S. Gharami, K. Aich , P. Ghosh, L. Patra, N. Murmu, T. K. Mondal*	A simple coumarin based “fluorescent on” probe for the selective detection of Al^{3+} along with its application in live cell imaging via AGS cell line	Journal of Photochemistry and Photobiology A: Chemistry	390, 112294, 2020	1010-6030
4.	S. Gharami, K. Aich , P. Ghosh, L. Patra, N. Murmu, T. K. Mondal*	A fluorescent “ON–OFF–ON” switch for the selective and sequential detection of Hg^{2+} and I^- with applications in imaging using human AGS gastric cancer cells	Dalton Transactions	49, 187 – 195, 2020	1477-9226
5.	K. Aich , S. Das, S. Gharami, L. Patra, T. K. Mondal*	Two New Quinoline-Benzothiazole Blended ‘Off-On’ Type Fluorescent Probes Exclusively Detect Cd^{2+}	Chemistry Select	4, 8068 – 8073, 2019	2365-6549
6.	C. K. Manna, S. Gharami, K. Aich , L. Patra, T. K. Mondal*	Simple fabrication of a carbaldehyde based fluorescent “turn-on” probe for the selective and sole detection of Pd^{2+} : application as test strips	New Journal of Chemistry	43, 16915 – 16920, 2019	1144-0546
7.	S. Gharami, K. Aich , S. Das, L. Patra, T. K. Mondal*	Facile detection of organophosphorus nerve agent mimic (DCP) through a new quinolinebased	New Journal of Chemistry	43, 8627 – 8633, 2019	1144-0546

		ratiometric switch			
8.	S. Maity, K. Aich , C. Prodhan, K. Chaudhuri, A. K. Pramanik, S. Das, J. Ganguly*	Solvent-Dependent Nanostructures Based on Active π -Aggregation Induced Emission Enhancement of New Carbazole Derivatives of Triphenylacrylonitrile	Chemistry A European Journal	25, 4856 – 4863, 2019	1521-3765
9.	S. Gharami, K. Aich , D. sarkar, P. Ghosh, N. Murmu,* T. K. Mondal*	An ESIPT based chromogenic and fluorescent ratiometric probe for Zn ²⁺ with imaging in live cells and tissues	New Journal of Chemistry	43, 1857 – 1863, 2019	1144-0546
10.	L. Patra, S. Das, S. Gharami, K. Aich , T. K. Mondal*	A new multi-analyte fluorogenic sensor for efficient detection of Al ³⁺ and Zn ²⁺ ions based on ESIPT and CHEF features	New Journal of Chemistry	42, 19076 – 19082, 2018	1144-0546
11.	L. Patra, K. Aich , S. Gharami, T. K. Mondal*	A new carbazole-benzothiazole based chemodosimeter for chromogenic and fluorogenic detection of CN ⁻	Journal of Luminescence	201, 419 – 426, 2018	0022-2313
12.	S. Gharami, K. Aich , L. Patra and T. K. Mondal*	Detection and discrimination of Zn ²⁺ and Hg ²⁺ using a single molecular fluorescent probe	New Journal of Chemistry	42, 8646 – 8652, 2018	1144-0546
13.	S. Das, K. Aich , L. Patra, K. Ghoshal, S. Gharami, M. Bhattacharyya, T. K. Mondal*	Development of a new fluorescence ratiometric switch for endogenous hypochlorite detection in monocytes of diabetic subjects by dye release method	Tetrahedron Letters	59, 1130 – 1135, 2018	0040-4039
14.	K. Aich , S. Das, S. Gharami, L. Patra and T. K. Mondal*	Triphenylamine-benzimidazole based switch offers reliable detection of organophosphorus nerve agent (DCP) both in solution and gaseous state	New Journal of Chemistry	41, 12562 – 12568, 2017	1144-0546
15.	S. Gharami, D. Sarkar, P. Ghosh, S. Acharyya, K.	A coumarin based azo-phenol ligand as efficient fluorescent“OFF-ON-OFF” chemosensor for	Sensors and Actuators B: Chemical	253, 317 – 325, 2017	0925-4005

	Aich , N. Murmu, T. K. Mondal*	sequential detection of Mg ²⁺ and F ⁻ : Application in live cell imaging and as molecular logic gate			
16.	K. Aich , S. Das, S. Goswami*, C. K. Quah, D. Sarkar, T. K. Mondal and H.-K. Fun	Carbazole–benzimidazole based dyes for acid responsive ratiometric emissive switches	New Journal of Chemistry	40, 6907 – 6915, 2016	1144-0546
17.	S. Das, K. Aich , S. Goswami*, C. K. Quah and H.-K. Fun	FRET-based fluorescence ratiometric and colorimetric sensor to discriminate Fe ³⁺ from Fe ²⁺	New Journal of Chemistry	40, 6414 – 6420, 2016	1144-0546
18.	K. Ghoshal, S. Das, K. Aich , S. Goswami, S. Chowdhury, M. Bhattacharyya*	A novel sensor to estimate the prevalence of hypochlorous (HOCl) toxicity in individuals with type 2 diabetes and dyslipidemia	Clinica Chimica Acta	458, 144 – 15, 2016	0009-8981
19.	S. Das, S. Goswami*, K. Aich , K. Ghoshal, C. K. Quah, M. Bhattacharyya and H.-K. Fun	ESIPT and CHEF based highly sensitive and selective ratiometric sensor for Al ³⁺ with imaging in human blood cell	New Journal of Chemistry	39, 8582 – 8587, 2015	1144-0546
20.	K. Aich , S. Goswami*, S. Das, C. D. Mukhopadhyay, C. K. Quah and H.-K. Fun	Cd ²⁺ triggered the FRET “ON”: a new molecular switch for the ratiometric detection of Cd ²⁺ with live-cell imaging and bound X-ray structure	Inorganic Chemistry	54, 7309 – 7315, 2015	0020-1669
21.	K. Aich , S. Goswami*, S. Das and C. D. Mukhopadhyay	A new ICT and CHEF based visible light excitable fluorescent probe easily detects <i>in vivo</i> Zn ²⁺	RSC Advances	5, 31189 – 31194, 2015	2046-2069
22.	S. Goswami*, S. Das and K. Aich	Fluorescent chemodosimeter based on spirobenzopyran for organophosphorus nerve agent mimics (DCP)	RSC Advances	5, 28996 – 29001, 2015	2046-2069

23.	S. Goswami*, K. Aich , S. Das, C. Das Mukhopadhyay, D. Sarkar and T. K. Mondal	A new visible light excitable ICT-CHEF mediated fluorescence 'turn on' probe for the selective detection of Cd ²⁺ in mixed aqueous system with live-cell imaging	Dalton Transactions	44, 5763 – 5770, 2015	1477-9226
24.	S. Goswami*, K. Aich , S. Das, B. Pakhira, K. Ghoshal, C. K. Quah, M. Bhattacharyya, H.-K. Fun and S. Sarkar	A triphenyl amine-based solvatofluorochromic dye for the selective and ratiometric sensing of OCl ⁻ in human blood cells	Chemistry an Asian Journal	10, 694 – 700, 2015	1861-4728
25.	S. Goswami*, S. Das, K. Aich , P. K. Nandi, K. Ghoshal, C. K. Quah, M. Bhattacharyya, H.-K. Fun and H. A. Abdel-Aziz	A rhodamine-quinoline based chemodosimeter capable of recognising endogenous OCl ⁻ in human blood cell	RSC Advances	4, 24881 – 24886, 2014	2046-2069
26.	S. Goswami*, S. Das, K. Aich , D. Sarkar and T. K. Mondal	A coumarin based chemodosimetric probe for ratiometric detection of hydrazine	Tetrahedron Letters	55, 2695 – 2699, 2014	0040-4039
27.	S. Goswami*, K. Aich , S. Das, S. B. Roy, B. Pakhira and S. Sarkar	A reaction based colorimetric as well as fluorescence 'turn on' probe for the rapid detection of hydrazine	RSC Advances	4, 14210 – 14214, 2014	2046-2069
28.	S. Goswami*, A. K. Das, K. Aich , A. Manna, H.-K. Fun and C. K. Quah	Single sensor for multiple analytes: fluorogenic detection of Al ³⁺ in aqueous media and AcO ⁻ in organic media	Supramolecular Chemistry	26, 94 – 104, 2014	1061-0278
29.	S. Goswami*, A. K. Das, A. K. Maity, A. Manna, K. Aich , S. Maity, P. Saha and T. K. Mandal	Visual and near IR (NIR) fluorescence detection of Cr ³⁺ in aqueous media via spirobenzopyr an ring opening with application in logic gate and bio-imaging	Dalton Transactions	43, 231 – 239, 2014	1477-9226

30.	S. Goswami*, K. Aich , S. Das, A. K. Das, D. Sarkar, S. Panja, T. K. Mondal and S. Mukhopadhyay	A red fluorescence 'off-on' molecular switch for selective detection of Al ³⁺ , Fe ³⁺ and Cr ³⁺ : experimental and theoretical studies along with living cell imaging	Chemical Communications	49, 10739 – 10741, 2013	1359-7345
31.	S. Goswami*, S. Das, K. Aich , B. Pakhira, S. Panja, S. K. Mukherjee and S. Sarkar	A chemodosimeter for the ratiometric detection of hydrazine based on return of ESIPT and its application in Live-Cell imaging	Organic Letters	15, 5412 – 5415, 2013	1523-7060
32.	S. Goswami*, S. Das, K. Aich , D. Sarkar, T. K. Mondal, C. K. Quah and H.-K. Fun	CHEF induced highly selective and sensitive turn-on fluorogenic and colorimetric sensor for Fe ³⁺	Dalton Transactions	42, 15113 – 15119, 2013	1477-9226
33.	S. Goswami*, S. Das, K. Aich , D. Sarkar, T. K. Mondal	Colorimetric as well as dual switching fluorescence 'turn on' chemosensors for exclusive recognition of Zn ²⁺ and HSO ₄ ⁻ in aqueous solution: experimental and theoretical studies	Tetrahedron Letters	54, 6892 – 6896, 2013	0040-4039
34.	S. K. Seth*, N. K. Das, K. Aich , D. Sen, H.-K. Fun, S. Goswami*	Exploring contribution of intermolecular interactions in supramolecular layered assembly of naphthyridine co-crystals: Insights from Hirshfeld surface analysis of their crystalline states	Journal of Molecular Structure	1048, 157 – 165, 2013	0022-2860
35.	S. Goswami*, D. Sen, A. K. Das, N. K. Das, K. Aich , H.-K. Fun, C. K. Quah, A. K. Maity, P. Saha	A new rhodamine-coumarin Cu ²⁺ -selective colorimetric and 'off-on' fluorescence probe for effective use in chemistry and bioimaging along with its bound X-ray crystal	Sensors and Actuators B: Chemical	183, 518 – 525, 2013	0925-4005

		structure			
36.	S. Goswami*, A. K. Das, K. Aich , A. Manna, S. Maity, K. Khanra and N. Bhattacharyya	Ratiometric and absolute water-soluble fluorescent tripodal zinc sensor and its application in killing human lung cancer cells	Analyst	138, 4593 – 4598, 2013	0003-2654
37.	S. Goswami*, S. Das, K. Aich	An ICT based highly selective and sensitive sulfur-free sensor for naked eye as well as fluorogenic detection of Hg ²⁺ in mixed aqueous media	Tetrahedron Letters	54, 4620 – 4623, 2013	0040-4039
38.	S. Goswami*, A. K. Das, K. Aich and A. Manna	Competitive intra- and inter-molecular proton transfer in hydroxynaphthyl benzothiazole: selective ratiometric sensing of acetate	Tetrahedron Letters	54, 4215 – 4220, 2013	0040-4039
39.	S. Goswami*, A. Manna, S. Paul, K. Aich , A. K. Das and S. Chakraborty	Dual channel selective fluorescence detection of Al (III) and PPI in aqueous media with 'off-on-off' switch which mimics molecular logic gating (INHIBIT and EXOR gate) interpretations	Dalton Transactions	42, 8078 – 8085, 2013	1477-9226
40.	S. Goswami*, A. Manna, S. Paul, A. K. Das, K. Aich and P. K. Nandi	Resonance-assisted hydrogen bonding induced nucleophilic addition to hamper ESIPT: ratiometric detection of cyanide in aqueous media	Chemical Communications	49, 2912 – 2914, 2013	1359-7345
41.	S. Goswami*, A. Manna, S. Paul, K. Aich , A. K. Das and S. Chakraborty	Highly reactive (<1 min) ratiometric probe for selective 'naked-eye' detection of cyanide in aqueous media	Tetrahedron Letters	54, 1785 – 1789, 2013	0040-4039
42.	S. Goswami*, K. Aich , S. Das, A. K. Das, A.	A highly selective and sensitive probe for colorimetric and	Analyst	138, 1903 – 1907, 2013	0003-2654

	Manna and S. Halder	fluorogenic detection of Cd ²⁺ in aqueous media			
43.	S. Goswami*, K. Aich , A. K. Das, A. Manna and S. Das	A naphthalimide-quinoline based probe for selective, fluorescence ratiometric sensing of trivalent ions	RSC Advances	3, 2412 – 2416, 2013	2046-2069
44.	S. Goswami*, A. K. Das, D. Sen, K. Aich , H.-K. Fun and C. K. Quah	A simple naphthalene-based colorimetric sensor selective for acetate	Tetrahedron Letters	53, 4819 – 4823, 2012	0040-4039
45.	S. Goswami*, K. Aich and D. Sen	Acridine based 'switching on' fluorescence sensor for Cd ²⁺ functioning in absolute aqueous media	Chemistry Letters	41, 863 – 865, 2012	0366-7022
46.	S. Goswami*, N. K. Das, K. Aich and D. Sen	A naphthyridine based macrocyclic "switching on" fluorescent receptor for cadmium	Journal of Luminescence	131, 2185 – 2188, 2011	0022-2313
47.	P. Roy, S. Das, K. Aich , S. Gharami, L. Patra and T. K. Mondal	A new highly selective and ratiometric chromogenic sensor for Cu ²⁺ detection	Journal of Indian Chemical Society	94, 755 – 760, 2017	0019-4522

➤ **Seminar or Conference attended:**

- International Conference: 3rd Asian Conference on Chemosensors and Imaging Probes (AsianChIP-2019), November 06th – 09th, 2019. Guru Nanak Dev University, Amritsar, Punjab. **(Present a Poster)**
- International Conference on Chemistry for Human Development (ICCHD-2018), January 8th – 10th, 2018. Heritage Institute of Technology, Kolkata in association with University of Calcutta, Kolkata, India. **(Present a Poster)**
- International Seminar on The Modern Trends in Inorganic Chemistry (MTIC), MTIC–XVII, December 11th – 14th, 2017. CSIR-NCL, Pune in association with IISER, Pune and S. P. Pune University, Pune, India. **(Present a Poster)**
- National Symposium on Recent Advances in Chemistry & Industry, August 2nd – 3rd, 2017. Indian Institute of Engineering Science and Technology, Shibpur and Indian Chemical Society, Kolkata, India. **(Present a Poster)**
- National Seminar on Emerging Trends in Chemistry, February 1st, 2017. Jadavpur University, Kolkata, India.

- 20th CRSI National Symposium in Chemistry, February 3rd – 5th, 2017. Gauhati University, India. **(Present a Poster)**
- International Symposium on Facets of Chemistry in Biology, January 12th, 2017. St. Xavier's College (Autonomous), India. **(Present a Poster)**
- 20th West Bengal State Science and Technology Congress-2013, February 28th-March 2nd, 2013. Bengal Engineering and Science University, Shibpur (Now IEST, Shibpur), India.

➤ **Others:**

- Junior Research Fellowship (**2009**): CSIR-NET, Rank - 133
- Graduate Aptitude Test in Engineering (**2009**): Percentile Score - 95.76, Rank - 284
- National Post-Doctoral Fellowship (**2016**): Science and Engineering Research Board (Department of Science and Technology), India