



Debangana Das, Ph.D.

Designation : Assistant Professor

Department : Department of Electronics Engineering
(JOINED THE INSTITUTE IN 2022)

Contact : 8777844134

Email : debanganadas4@gmail.com

RESEARCH INTERESTS

- ✓ Development of electrochemical sensors
- ✓ Development of capacitive sensors
- ✓ Analytical instrumentation (HPLC, NIR spectroscopy, GCMS, UV-vis, FESEM, SEM, etc.)
- ✓ Application of machine learning algorithms on the real time data obtained using the aforementioned sensors
- ✓ Investigation of piezoelectric properties of certain nanomaterials.

Academic Qualifications

- ✓ PhD – Jadavpur University, Kolkata
- ✓ M. Tech – Jadavpur University, Kolkata
- ✓ B. Tech – MAKAUT, West Bengal

Teaching Experience/Industrial Experience/Research Experience

- ✓ Junior Research Fellow (JRF), Department of Instrumentation and Electronics Engineering, Jadavpur University, Kolkata.
- ✓ Senior Research Fellow (SRF), Department of Instrumentation and Electronics Engineering, Jadavpur University, Kolkata.

PUBLICATIONS

JOURNALS

JOURNAL ARTICLES & CONFERENCES PAPERS

- [1]. D. Das, S. Nag, A. Adaval, A. K. Hazarika, S. Sabhapondit, A. R. Bhattacharyya, B. Tudu, R. Bandyopadhyay, R.B. Roy, "Amine Functionalized MWCNTs Modified MIP-Based Electrode for Detection of Epicatechin in Tea, IEEE Sensors Journal, vol. 22, no. 11, pp. 10323-10330, June1, 2022doi: 10.1109/JSEN.2022.3169169.
- [2]. D. Das, S. Nag, S. De, A. K. Hazarika, S. Sabhapondit, B. Tudu, R. Bandyopadhyay, R.B. Roy. Electrochemical Detection of Epicatechin in Green Tea Using Quercetin-Imprinted Polymer Graphite Electrode, IEEE Sensor Journal, vol. 21 (23) pp.265226- 265234, 2021.

- [3]. D. Das, D. Biswas, A.K. Hazarika, S. Sabhapondit, R. B. Roy, B. Tudu, R. Bandyopadhyay, "CuO Nanoparticles modified MIP-Based Electrode for Sensitive Determination of Gallic Acid in Green Tea," *IEEE Sensors Journsl.*, vol. 21, pp. 5687-5694, 2021.
- [4]. D. Das, Trisita Nandy Chatterjee, Runu Banerjee Roy, Bipan Tudu, Ajanto Kumar Hazarika, Santanu Sabhapondit, Rajib Bandyopadhyay, "Titanium oxide nanocubes embedded molecularly imprinted polymer based electrode for selective detection of caffeine in green tea", *IEEE Sens. J.*, vol. 20 pp. 6240-6247, 2019.
- [5]. D. Das, Shreya Nag, Srikanta Acharya, Srikanta Barik, Bipan Tudu, Runu Banerjee Roy, "Discrimination of Tea using Caffeine-Sensitive Sensor by Employing different Classifiers and various Data Analysis Techniques", *Journal of The Institution of Engineers (India): Series B*, 102, 939-946 (2021) doi: 10.1007/s40031-021-00611-8 May 2021.
- [6]. D. Bandyopadhyay, S. Acharya, S. Nag, D. Das, R. Banerjee Roy A Molecular Imprinted Bi-Polymer Infused Capacitive Sensor for Inositol Detection in Fruits, *IEEE Transactions on Instrumentation and Measurement*, vol. 72, pp. 1-9, 2023 August, 2023.
- [7]. S. Nag, S. Pradhan, D. Das, B. Tudu, R. Bandyopadhyay, R. B. Roy, "Fabrication of a Molecular Imprinted Polyacrylonitrile engraved Graphite Electrode for Detection of Formalin in Food Extracts", *IEEE Sensors Journal*, vol. 22, no. 1, pp. 42-49, DOI 10.1109/JSEN.2021.3128520, 2021 10.
- [8]. D. Bandyopadhyay, S. Nag, D. Das, S. Acharya, B. Tudu, R. Bandyopadhyay, R. B. Roy. "Voltammetric Detection Of Inositol Using A Platinum Based Electrode ", vol.12, pp. 2250004 2250012, *NanoLife*, 2022.
- [9]. D. Das, Trisita Nandy Chatterjee, Runu Banerjee Roy, Bipan Tudu, Santanu Sabhapondit, Panchanan Pramanik, Rajib Bandyopadhyay, Discrimination of green tea using an Epigallocatechin 3- gallate (EGCG) sensitive molecular imprinted polymer (MIP) based electrode, *Carbon - Science and Technology* p. 27 – 37 (2018).
- [10]. S. Acharya, D.Das, Trisita Nandy Chatterjee, Soumen Roy, Runu Banerjee Roy, Bipan Tudu, and Rajib Bandyopadhyay, "Voltammetric Electrode Array Optimization for Black Tea Discrimination Using Computational Intelligence Approach", *IEEE Sensors Journal*, vol. 21, no. 18, pp. 20589 20595, 15 Sept.15, 2021 doi: 10.1109/JSEN.2021.3098036.
- [11]. T.Chatterjee, D. Das, R. Banerjee Roy, B. Tudu, A. Kumar Hazarika, S. Sabhapandit, P. Tamuly, R. Bandyopadhyay, "Development of a nickel hydroxide nanopetal decorated molecular imprinted polymer based electrode for sensitive detection of epigallocatechin-3-gallate in green tea", *Sensors and Actuators B: Chemical*, vol. 283pp. 69-78, March, 2019.
- [12]. Trisita Nandy Chatterjee, Debangana Das, Runu Banerjee Roy, Bipan Tudu, Santanu Sabhapondit, Pradip Tamuly, Panchanan Pramanik, Rajib Bandyopadhyay, "Molecular Imprinted Polymer Based Electrode for Sensing Catechin (+C) in Green Tea", *IEEE Sensors Journal*, pp.103-107 March 15.
- [13]. Samhita Dasgupta, Shreya Nag, Debangana Das, Runu Banerjee Roy, Deepak Kumar Das, Panchanan Pramanik, Rajib Bandyopadhyay, Bipan Tudu, Electrochemical Sensor Based on CuO Nanoparticles-Modified Graphite Electrode for the Detection of Malachite Green, vol. 14. 2023, *Nano LIFE* page-2350015

- [14]. Shreya Nag, D. Das, Runu Banerjee Roy, "A Novel Molecular Imprinted Polymethacrylic Acid Decorated Graphite Electrochemical Sensor for Analyzing Metanil Yellow Adulteration in Food", *IEEE Sensors Journal*, vol. 23, no. 18, pp. 20951-20958, 15 Sept.15, 2023, DOI:10.1109/JSEN.2023.3300732.
- [15]. Srikanta Acharya, Debangana Das, Shreya Nag, Amit Mandal, Bipan Tudu, Runu Banerjee Roy, "Optimization Techniques for a Voltammetric Signal to Predict Green Tea Quality Parameters Using MIP Electrode", *IEEE Sensors Journal* vol. 23, no. 17, pp. 19842-19847, Sept.1, 2023, DOI:10.1109/JSEN.2023.3297140.
- [16]. Madhurima Moulick, Debnagana Das, Shreya Nag, Runu Banerjee Roy, "Detection Of theophylline using Samarium oxide nanoparticles ingrained graphite electrode", *Nano LIFE*, vol. 13(02), pp. 2350007, 2023. doi:10.1142/S1793984423500071
- [17]. Shreya Nag, Debangana Das, Hemanta Naskar, Bipan Tudu, Rajib Bandyopadhyay, Runu Banerjee Roy, "Detection of metanil yellow adulteration in turmeric powder using nano nickel cobalt oxide modified graphite electrode", *IEEE Sensors Journal* 22 (13), pp. 12515-12521, 2022
- [18]. S. Acharya, S. Nag, D. Bandyopadhyay, D. Das, A. Mandal and R. Banerjee Roy, "A Molecular Imprinted Polymer Tethered Capacitive Sensor for Epicatechin Detection in Green Tea," in *IEEE Sensors Journal*, vol. 24, no. 4, pp. 4213-4220, 15 Feb.15, 2024, doi: 10.1109/JSEN.2023.3344668.
- [19]. Angiras Modak, Debangana Das, Trisita Nandy Chatterjee, Bipan Tudu, Runu Banerjee Roy, "Regression Based EGCG Detection in Green Tea Employing MIP Electrodes", *IEEE Sensors Journal*, Digital Object Identifier: 10.1109/JSEN.2023.3344668.
- [20]. S. Nag, D. Das and R. B. Roy, "Voltammetry Application of Molecularly Imprinted Polyacrylamide as Vanillin Receptor in Desserts," in *IEEE Sensors Journal*, vol. 23, no. 4, pp. 3446-3452, 2023
- [21]. M. Moulick, D. Das, S. Nag, B. Tudu, R. Bandyopadhyay and R. Banerjee Roy, "Molecularly Imprinted Polymer-Based Electrode for Tannic Acid Detection in Black Tea," in *IEEE Sensors Journal*, vol. 23, no. 6, pp. 5535-5542
- [22]. Dipan Bandyopadhyay a, Shreya Nag b, Debangana Das c, Runu Banerjee, "Detection of syringic acid in food extracts using molecularly imprinted polyacrylonitrile infused graphite electrode", *Journal of food composition and analysis*, vol.134, pp. 106280. August, 2024.
- [23]. D. Das, Trisita Nandy Chatterjee, Ajanto Kumar Hazarika, Santanu Sabhapondit, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "Development of a Highly Selective Nickel Cobalt Oxide Nanoparticles Modified Molecular Imprinted Polymer Based Sensor For Detection of Gallic Acid In Green Tea", *IEEE ISOEN*, Fukuoka, Japan, 2019
- [24]. D. Das, Trisita Nandy Chatterjee, Runu Banerjee Roy, Bipan Tudu, Santanu Sabhapondit, Ajant Kumar Hazarika, Panchanan Pramanik and Rajib Bandyopadhyay, "Identification of Different Variants of Green Tea by using an Epigallocatechin-3-gallate (EGCG) Sensitive Molecular Imprinted Polymer (MIP) Based Electrode", Abstract ID: 75, *International Conference on Current Trends and Material Science Engineering (CTMSE 2018)*.

- [25]. Debangana Das, Shreya Nag, Ajanto Kumar Hazarika, Santanu Sabhapondit, Bipan Tudu, Rajib Bandyopadhyay, Runu Banerjee Roy "Development of CeO₂ embedded carbon paste electrode for detection of theophylline- A broncho dilator," 33rd Anniversary World Congress on BIOSENSORS, 5-8 June 2023, Busan, South Korea.
- [26]. Debangana Das, Shreya Nag, Sawon Bhowmick, Ajanto Kumar Hazarika, Santanu Sabhapondit, Bipan Tudu, Rajib Bandyopadhyay, Runu Banerjee Roy "Determination of Epicatechin Content in Green Tea Samples Using Near Infrared Spectroscopy", 33rd Anniversary World Congress on BIOSENSORS, 5-8 June 2023, Busan, South Korea.
- [27]. Debangana Das, Shreya Nag, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, Discrimination of Green Tea Samples on the Basis of Gallic Acid Content Using Near Infrared Spectroscopy February 2020, Conference: The 7th Asian Near Infrared Symposium, At: RMUTI Khonkaen campus, Khonkaen 40000, Thailand.
- [28]. Debangana Das, Tanmay Sau, Rishiraj Ray, Runu Banerjee Roy, Bipan Tudu, Ajanto Kumar Hazarika, "Development of carbon paste electrode for theophylline detection " MSSND, Jadavpur Univeristy, 2019.
- [29]. Debangana Das, Shreya Nag, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "Discrimination of various types of black tea clones using NIR spectroscopy", ICEFEET 2020.
- [30]. Shreya Nag, Debangana Das, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay Estimation of a Few Important Biomarkers in Black Tea Using NIR Spectroscopy and Chemometrics, February 2020, Conference: The 7th Asian Near Infrared Symposium, At: RMUTI Khonkaen campus, Khonkaen 40000, Thailand.
- [31]. Hemanta Naskar, Debangana Das, Shreya Nag, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, Adulteration detection of mustard oil using near infrared spectroscopy February 2020, Conference: The 7th Asian Near Infrared Symposium, At: RMUTI Khonkaen campus, Khonkaen 40000, Thailand.
- [32]. Shreya Nag, Debangana Das, Hemanta Naskar, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "Estimation of theophylline content in black tea", ICEFEET 2020.
- [33]. Hemanta Naskar, Debangana Das, Shreya Nag, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, "Determination of curcumin in turmeric powder using MIP electrode", ICEFEET, 2020.
- [34]. Sensitive Electrochemical Detection of Carvacrol using Carbon Paste Electrode, Sounak Banerjee; Hemanta Naskar; Barnali Ghatak; Sanjoy Banerjee; Shreya Nag; Debangana Das; Runu Banerjee Roy; Nityananda Das; Bipan Tudu; Rajib Bandyopadhyay, 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET)
- [35]. Optimization of Electrode Array in Electronic Tongue for Classification of Black Tea Srikanta Acharya; Trisita Nandy Chatterjee; Soumen Mukherjee; Debangana Das; Bipan Tudu; Rajib Bandyopadhyay; Runu Banerjee Roy, 2018 IEEE Applied Signal Processing Conference (ASPCON)
- [36]. Shreya Nag; Debangana Das; Bipan Tudu; Runu Banerjee Roy Multivariate Analysis of Formalin Using UV-Vis Spectroscopy 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI) Year: 2021 | Conference Paper | Publisher: IEEE

- [37]. Development of Molecularly Engraved Polymer Based Sensor for Detection of Theobromine in Tea, Debangana Das; Shreya Nag; Upasana Saha; Bipan Tudu; Runu Banerjee Roy, 2021 IEEE Second International Conference on Control, Measurement and Instrumentation (CMI), Year: 2021 | Conference Paper | Publisher: IEEE
- [38]. Madhurima Moulick, Shreya Nag, Debangana Das; Bipan Tudu, Rajib Bandyopadhyay; Runu Banerjee Roy, Detection of Tannic Acid using Nd₂O₃ Modified Graphite Electrode 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET)
- [39]. Shreya Nag; Debangana Das; Sawon Bhowmik; Bipan Tudu; Rajib Bandyopadhyay; Runu Banerjee Roy, An assessment of Metanil Yellow Adulteration in Pigeon Pea using NIR Spectroscopy 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET)
- [40]. A.H.M. Toufique Ahmed; Shreya Nag; Debangana Das; Hemanta Naskar; Runu Banerjee Roy; Rajib Bandyopadhyay; Bipan Tudu Detection of Andrographolide Using Platinum Electrode Based Electrochemical System 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET)

ANY OTHER

BOOK CHAPTER

- ✓ "Personal Protective Equipments for COVID-19: A Comprehensive Review", Intelligent Healthcare Informatics for Fighting the COVID-19 and Other Pandemics and Epidemics" Springer, pp. 141-154. By: Debangana Das, Shreya Nag, Hemanta Naskar, Srikanta Acharya, Sourav Bakchi, Sheikh Saharuk Ali, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay, doi: 10.1007/978-3-030-72752-9_7 isbn: 978-3-030-72752-9
- ✓ SmartCovSens: A Multimodal Approach for Detection of COVID-19, Intelligent Healthcare Informatics for Fighting the COVID-19 and Other Pandemics and Epidemics" Springer, communicated on acceptance of the title, pp.285-310. By: Sanjoy Banerjee Debangana Das, Barnali Ghatak Sk Babar Ali Prolay Sharma, Saurabh Pal, Nityananda Das, Anwesha sengupta, Prabal Patra, Chitresh Kundu, Arunangshu Ghosh, Rajib Bandyopadhyay Dipankar Mandal, Bipan Tudu. DOI: 10.1007/978-3-030-72752-9_15. isbn 978-3-030-72752-9
- ✓ Assay of Molecular Imprinted Polymers as Food Additive Detectors October 2023 DOI:10.4018/978-1-6684-9094-5.ch016 In book: Impactful Technologies Transforming the Food Industry (pp.255-267) Authors: Shreya Nag, Debangana Das, Runu Banerjee Roy

PATENT

- ✓ A formulation of eco e-paint for flexible electronics : 202231044198 - **Granted.**