

# CURRICULUM VITAE

## *Dr. Nongthombam Geetmani Singh*

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Citizenship: Indian

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## EDUCATION

Degree	School / College/ University	Subjects	Percentage	Year of Degree	Remarks
SSLC	James Memorial School (MBOSE)	English, Alternative English, Science, Mathematics, Social Science, Health Education.	71.83	2004	First Division
HSSLC	Union Christian College (MBOSE)	Physics, Chemistry, Mathematics, Biology, English, Alternative English.	69	2006	First Division
BSc (Hons)	St. Anthony's College (NEHU)	Chemistry (Honours), Physics, Mathematics, English, Man & Environment.	72.13	2009	University Topper (1 <sup>st</sup> Rank)
MSc	North-Eastern Hill University	Chemistry	78.3	2011	University 2nd Rank
PhD	North-Eastern Hill University	Organic Chemistry	-	2016	-

PhD & MSc Project details	Thesis title	Supervisor
MSc (Organic Chemistry)	One pot synthesis of 3,3'-(arylmethylene) <i>bis</i> (4-hydroxy-2 <i>H</i> -chromen-2-one) derivatives	Dr. A. K. Pal.
Ph.D. (Organic Chemistry)	Organo and nano catalysed approach towards the synthesis of oxygen and nitrogen heterocycles	Dr. Rishanlang Nongkhlaw

Other Qualification	Conducted by	Subject	Year	Remarks
SLET (State Level Eligibility Test)	North-East Region, India.	Chemistry	2015	Qualified
GATE (Graduate Aptitude Test for Engineering)	IIT-Kanpur-NCB-MHRD, India	Chemistry	2015	Qualified
GATE (Graduate Aptitude Test for Engineering)	IISc-NCB-MHRD, India	Chemistry	2016	Qualified

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## EXPERIENCE

Designation	Institute	Project Title	Supervisor	Duration
Research Associate	North-Eastern Hill University (NEHU)	Fabrication of nanocarbon hybrids for catalytic applications in organic synthesis	Dr. Rishanlang Nongkhlaw	6 months (Jan 2017-July 2017)
Postdoctoral Research Associate	CSIR-NEIST	Novel synthesis of Steroidal Aza Heterocycles as Enzyme Inhibitors.	Dr. Romesh Chandra Boruah	3 years 6 months (August 2017-Feb 2021)
SERB-National Postdoctoral Fellow	Indian Institute of Technology-Guwahati (IITG)	Synthetic and theranostic studies of AIE based luminogens for detection and killing of pathogens	Dr. Parameswar K. Iyer	2 years (March 2021-Feb 2023)
Guest Faculty (Asst. Prof.)	North-Eastern Hill University (NEHU)	Organic chemistry course	-	1 month (May 2023)
Institute Postdoctoral Fellow	Institute of Advanced Study in Science and Technology (IASST)	Traditional knowledge based drug development and delivery.	Dr. Jagat Chandra Borah	1 year 6 months (June 2023-Nov 2024)

## Awards

State/National	Award name	Awarded by	Year
State	Prof. S. N. Pal Award ( <i>for highest marks in Chemistry in Degree Examination 2009</i> )	St. Anthony's College	2009
National	University Book Prize ( <i>For University 1<sup>st</sup> Rank holder in Degree Examination 2009</i> )	North-Eastern Hill University	2009
National	DST-NPDF (Postdoctoral Grant award by DST)	DST-India	2020

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## RESEARCH PUBLICATIONS (Total: 23 published)

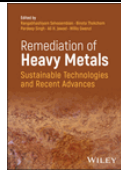
Sl. No.	Title of the paper	Journal with volume, page nos. and year	ISSN/ ISBN No.	Impact factor	First/Co-Author
1	Breaking Boundaries in Diabetic Nephropathy Treatment: Design and Synthesis of Novel Steroidal SGLT2 Inhibitors	<b>RSC Medicinal Chemistry (RSC)</b> , 2024, doi.org/10.1039/D4MD00645C	2632-8682	4.1	First author
2	The chronological evolution of environment benign processes in the synthesis of natural products and APIs	<b>Sustainable Chemistry and Pharmacy (Elsevier)</b> , 2024, 41, 101725	2352-5541	5.5	First author & Corresponding Author
3	Through-space Charge-transfer based Aggregation Induced Emission and Thermally Activated Delayed Fluorescence in Fused 2H-Chromene Coumarin Congener Generating ROS for Anti-viral (SARS-CoV-2) Approach.	<b>ACS Applied Bio Materials (ACS)</b> , 2024, 7, 1899-1909	2576-6422	4.7	First author
4	D-Ring modification of steroids: synthesis of isoxazole annulated steroids from des D-formyl alkyne via 1,3-dipolar cycloaddition reaction.	<b>Synthetic Communication (Taylor &amp; Francis)</b> , 2021, 51(18), 2853-2861	0039-7911	2.1	First author
5	Augmentation of steroidal $\beta$ -formylenamide with pyrazolo and benzimidazo moieties: A tandem approach to highly fluorescent steroidal heterocycles	<b>Tetrahedron Letters (Elsevier)</b> , 2021, 67, 152893	0040-4039	2.415	First author
6	Synthesis of D-ring annulated pyridosteroids from $\beta$ -formyl enamides and their biological evaluations.	<b>ACS Combinatorial Science (ACS)</b> , 2019, 21, 11-27.	2156-8952	3.903	First author
7	Divergent synthesis of steroid analogs from steroidal $\beta$ -formyl enamides, conjugated enones and $\beta$ -formylvinyl halides.	<b>Heterocycles (Elsevier)</b> , 2019, 98(1), 19-62.	1881-0942	1.079	First author
8	UV <sub>365</sub> light promoted catalyst-free synthesis of pyrimido [4,5-b]quinoline-2,4-diones in aqueous-glycerol medium.	<b>New Journal of Chemistry (RSC)</b> , 2018, 42, 9436-9442.	1144-0546	3.925	First author
9	Experimental and theoretical studies on SPION@glutathione catalyzed synthesis of indolylchromene, indolo xanthene, and pyrimido[4,5-b]quinolone.	<b>Synthetic Communication (Taylor &amp; Francis)</b> , 2018, 48(5), 541	0039-7911	2.1	First author
10	Synthetic, Mechanistic and Kinetic studies on the Organo- nano catalyzed synthesis of Oxygen and Nitrogen containing Spiro compounds under Ultrasonic condition.	<b>Green Chemistry (RSC)</b> , 2016, 18, 4216-4227.	1463-9262	11.034	First author
11	Nickel Nanoparticles assisted Regioselective synthesis of Pyrazoloquinolinone and Triazoloquinazolinone derivatives.	<b>New Journal of Chemistry (RSC)</b> , 2015, 39, 3908-3915.	1144-0546	3.925	First author

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Sl. No.	Title of the paper	Journal with volume, page nos. and year	ISSN/ ISBN No.	Impact factor	First/Co-Author
12	Bakers' yeast: An Environment benign catalyst for the One- pot synthesis of Indolyl chromenes and Bisindolyl alkanes.	<b>Green Chemistry Letters &amp; Reviews</b> (Taylor & Francis), 2014, 7(2), 137	1751-8253	6.016	First author
13	Synthesis of Pharmacologically active Bis(indolyl) and Tris(indolyl) Derivatives using Chlorotrimethylsilane.	<b>Journal of the Chinese Chemical Society</b> (Wiley-VCH), 2014, 61, 442.	0009-4536	1.967	First author
14	Fe <sub>3</sub> O <sub>4</sub> supported acidic ionic liquid: An efficient and recyclable magnetic nanoparticles catalyst for one-pot synthesis of Bis(indolyl)methanes	<b>Indian Journal of Chemistry</b> (CSIR-NIScPR), 2023, 62(1), 16-23.	0975-0975	0.412	Co-Author
15	Facile Synthesis of 1,2-Disubstituted Benzimidazoles Using p-Toluenesulfonic Acid through Grinding Method.	<b>Russian Journal of Organic Chem.</b> (Springer), 2020, 56, 1628-1634.	1070-4280	0.862	Co-Author
16	[1,3]oxazines: green synthesis by sonication using a magnetically-separable basic nano-catalyst and investigation of its activity against the toxic effect of a pesticide on the morphology of blood cells.	<b>Environmental Chemistry Letters</b> (Springer), 2019, 17(3), 1325–1331.	1610-3653	15.7	Co-Author
17	An environment-friendly magnetic organo-nanomaterial as a potent catalyst in synthesis of pyranopyrazole derivatives.	<b>Current Organocatalysis</b> (Bentham Science), 2018, 5(2), 150.	2213-3380	1.06	Co-Author
18	N, N'-dialkyl-4-aryl-3,4-dihydropyrimidinones and thiones: Ceric Ammonium Nitrate Catalysed Synthesis and Molecular Structure determination by X-ray Crystallography.	<b>Journal of Heterocyclic Chemistry</b> (Wiley-VCH), 2017, 54(2) 1486-1491.	1943-5193	2.193	Co-Author
19	A Nano-organo catalyzed route towards the efficient synthesis of benzo[b]pyran derivatives under Ultrasonic irradiation.	<b>RSC Advances</b> (RSC), 2016, 6, 108384-108392.	2046-2069	4.036	Co-Author
20	One-pot synthesis of 3, 4-dihydropyrimidin-2(1H)-ones catalysed by [BMIM]Br under solvent-free condition.	<b>Bulgarian Chemical Communications</b> , 2016, 48, 4, Supp. article, 3-10.	0324-1130	0.640	Co-Author
21	One-pot Synthesis of 3,4-Dihydropyrimidin-2(1H)- ones Catalysed by Cupric Acetate under Solvent- free Conditions.	<b>Journal of the Chinese Chemical Society</b> (Wiley-VCH), 2014, 61, 1254.	0009-4536	1.967	Co-Author
22	Cupric Acetate Catalysed Alkylation of Indoles in Water: A Comparative study between Conventional Heating and Microwave Irradiation.	<b>Organic Chemistry An Indian Journal</b> , (TSI), 2012, 9(7), 257-266.	0974-7516	0.36	Co-Author
23	A Convenient and Greener synthesis of Bis(indolyl)methanes in Surfactant medium under Microwave Irradiation	<b>Organic Chemistry An Indian Journal</b> (TSI), 2012, 8(4), 121-126.	0974-7516	0.36	Co-Author

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## BOOK CHAPTER PUBLICATIONS (Total: 2): 1 Published + 1 under publication status

Sl. No.	Book Name	Book Chapter	Authors
1		<i>Impact of Heavy Metals on Human Health</i> (DOI:10.1002/9781119853589.ch4) © 2024 John Wiley & Sons Ltd. Print ISBN:9781119853558 Online ISBN:9781119853589	Retwik Parui, <b>Geetmani S. Nongthombam</b> , Maimur Hossain, Laxmi R. Adil, Rajdikshit Gogoi, Soumalya Bhowmik, Debika Barman, Parameswar K. Iyer
2	Innovations in Bioactive Compound Discovery	<i>From the Garden to the Meal: Extraction, Isolation and Authentication of Bioactive Components in Traditional Medicinal Plants</i> (Cambridge Scholars Publishing)	<b>Geetmani Singh Nongthombam</b> , Abhipsha Saikia and Jagat Chandra Borah

## PATENT:

- 1) “*Steroidal Sodium-Glucose Transporter 2 (SGLT2) Inhibitors and Synthesis Thereof*”. J. C. Borah, **G. S. Nongthombam**, A. K. Mukherjee, S. A. Ahmed, A. Saikia. (Patent Reference Number: 202431009934). (Application filed on February 2024 from IASST)

## PROJECTS COMPLETED:

National / International	Funding Agency	Name of Project	Duration	Role	Status
National	DST-India	Synthetic and theranostic studies of AIE based luminogens for detection and killing of pathogens	2 years	Principal Investigator	Completed

## RESEARCH SKILLS

- ✓ Development of new methodologies for organic reactions using nanocatalysts and photocatalysis.
- ✓ Synthesis of oxygen and nitrogen heterocycles using organo as well as nanocatalyst.
- ✓ Synthesis of novel steroidal compounds which have applications as enzyme inhibitors.
- ✓ Synthesis of metal nanoparticles by chemical methods.
- ✓ Fabrication, design and synthesis of Organo functionalized superparamagnetic iron-oxide nanoparticles.
- ✓ Theoretical and computational studies on the mechanistic pathways of organo catalyzed reactions.
- ✓ Theoretical and computational studies on the photophysical studies.
- ✓ Thorough characterization of nanoparticles and functionalized nanoparticles *via*. TEM, SEM, powder XRD, VSM, TGA / DTA, EDS, FT-IR, UV, *etc*.

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- ✓ Experienced in characterizing organic compounds by various analytical techniques *viz.* FT-IR, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR, mass spectra, single crystal XRD data, *etc.*
- ✓ Experienced in handling FT-IR, microwave digester, rotavapor, ultrasound instruments and various separation techniques *viz.* column chromatography, flash chromatography, HPLC, *etc.*
- ✓ Experienced in the use of UV-visible and fluorescence spectrophotometer.
- ✓ Preparation / writing of research papers, journals, articles, projects, *etc.*
- ✓ Design, synthesis and characterization of (Thermally Activated Delayed Fluorescence) TADF and RTP (Room Temperature Phosphorescence) molecules.
- ✓ DFT theoretical studies using Gaussian software (Energy/Structure optimization, Energy calculations for ground state as well as excited states, HOMO-LUMO calculations, transitions state determination, *etc.*)
- ✓ Bioinformatics (Molecular Docking studies using Autodock Vina)
- ✓ Chemical Biology (Cell culture and bioassays)

## ATTENDED WORKSHOPS

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- National workshop on “**X-RAY Techniques for Characterization of Materials**” organized by SAIF and CIL Panjab University, Chandigarh from 11-13 February 2015.
- National workshop on “**Electron microscope in Physical sciences**” organized by SAIF-NEHU, Shillong from 4-6 March 2014.
- National workshop on “**Applications of FT-NMR in Chemical and Biological sciences**” organized by SAIF-NEHU, Shillong from 19-22 March 2013.
- National workshop on “**Mass Spectroscopy and its applications**” organized by SAIF-NEHU, Shillong from 12-14 March 2013.
- National workshop on “**Intensive training on Science communication**” organized by CSIR-NEIST, Jorhat, Assam from 18-21 February 2013.
- Workshop on “**Enhancing Employability**” conducted by St. Anthony’s College, Shillong in association with FAEA (Foundation for Academic Excellence and Access), New Delhi from 12-17 December 2007.
- Workshop on “**Public Speaking**” conducted by Department of Mass Media, St. Anthony’s College, Shillong from 10-20 October 2006.

## WINTER SCHOOL ATTENDED

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Participated and presented a poster in the International Winter School on “**Frontiers in Materials Science**” jointly organized by JNCASR (Bengaluru), Cambridge University (England) and Ras Al Khaimah (United Arab Emirates) at Bangalore from 1st to 5th December 2013.

## CONFERENCES/PRESENTATIONS ATTENDED

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- Delivered an invited lecture on “**Steroids: The good, the Bad and the Mysterious**” in ‘National Seminar on New Trends in Chemistry: Post Covid-19’ on 22<sup>nd</sup> February 2023 at Union Christian College, Umiam-Khwan, Meghalaya.
- Delivered an invited lecture on “**Insights into the Chemistry of Steroids**” in ‘National webinar on Sustainable Chemistry and its impact on Society’ from 27-28<sup>th</sup> August 2021 at St. Joseph’s college, Jakhama, Nagaland.

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- iii. Delivered an Oral presentation on ***“Role of nanoparticles and Organo-nanocatalyst in the synthesis of Oxygen and Nitrogen Spiro Heterocycles.”*** in ‘National symposium on Emerging trends in Chemistry’ from 28-29<sup>th</sup> March 2016 at NEHU, Shillong.
  - iv. Attended a ‘National seminar on Climatic Aberrations: Contemporary dilemma of the anthropogenic climate in socio and ecological issues’ from 23-24<sup>th</sup> July 2015 at Sankardev College, Shillong.
  - v. Presented a poster entitled ***“Nickel nanoparticle catalysed regioselective synthesis of Quinolinone and Quinazolinone derivatives.”*** in the ‘National symposium on Recent Trends and Perspectives in Chemistry’ from 23-24<sup>th</sup> January 2015 at NIT, Sikkim.
  - vi. Presented a poster entitled ***“One-pot Nickel nanoparticle catalysed Biginelli and Hantzsch type condensations.”*** in the ‘International symposium on Recent Advances in Chemistry’ from 3-5<sup>th</sup> March 2015 at NEHU, Shillong, Meghalaya.
  - vii. Presented a poster entitled ***“Chlorotrimethylsilane catalysed synthesis of pharmacologically active indolyl derivatives”*** in the ‘National symposium on sustainable chemistry: Frontiers and challenges’ from 27<sup>th</sup> Feb – 1<sup>st</sup> March 2014 at NEHU, Shillong.
  - viii. Presented a poster entitled ***“Green protocol for one-pot three component synthesis of indolyl chromenes and bis(indolyl)alkanes using bakers’ yeast as catalyst”*** in the ‘International conference on Harnessing natural resources for sustainable development: Global trends’ from 29-31<sup>st</sup> January 2014 at Cotton College, Guwahati, Assam.
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