Dr. SUVANKAR DEBBARMA

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PERSONAL INFORMATION: **Sex:** Male **Marital Status:** Married
Date of Birth: 22-05-1990 **Nationality:** Indian

OBJECTIVE: "***Committed to do good & quality research in Synthetic Organic Chemistry***"

EDUCATIONS:

Ph. D., (Jul-2014 to Aug-2019): Department of Chemistry, Indian Institute of Technology Kharagpur (**IIT-Kharagpur**), India. (Supervisor ***Prof. Dr. Modhu Sudan Maji***).
Thesis title: '*Transition-Metal-Catalyzed External Oxidant Free C–C and C–N Bond Formation*'

M. Sc., (Jul-2011 to Jul-2013): Department of Chemistry, Indian Institute of Technology Madras (**IIT-Madras**), India. (Supervisor ***Prof. Dr. S. Baskaran***).
Thesis title: '*Synthesis of New Organocatalyst for Asymmetric Transformation*'

B. Sc., (Aug-2008 to Jun-2011): Chemistry Honors (First class), **Vidyasagar University**, West Bengal, India.

RESEARCH EXPERIENCE:

Apr, 2023 – present: **Post-Doctoral Fellow (Fixed-Term Researcher)**

Principal Investigator: ***Prof. Dr. Tsuyoshi Mita.*** Institute for Chemical Reaction Design and Discovery (WPI-ICReDD), Hokkaido University.

- Radical fixation reactions of carbon dioxide (CO_2) under visible light photoredox chemistry.
- Visible light photoredox catalysis for carbocyclization using excited state palladium.

Apr, 2022 – Nov, 2022: **Assistant professor,** Department of Chemistry, Department of Chemistry, Tohoku University, Sendai, Japan. (**Principal Investigator**: ***Prof. Dr. Yujiro Hayashi***)

- Asymmetric total synthesis of **Amphidinolide N**.

Jun, 2020 – Mar, 2022: **Institute Research Associate (RA),** Department of Chemistry, Indian Institute of Technology Kharagpur (**IIT-Kharagpur**), India. (Supervisor ***Prof. Dr. Modhu Sudan Maji***).

- Development of a novel strategy for asymmetric *C–H* functionalization using peptide ligand assisted Cp*Co(III)-catalysis.

Sep, 2019 – Jan, 2020: **Post-Doctoral Fellow (Fixed-Term Researcher)**

Principal Investigator: ***Prof. Dr. Shengming Ma*****.** Department of Chemistry, Fudan University/Shanghai Institute of Organic Chemistry (SIOC), **CAS**, China.

- Developed a novel strategy for *Asymmetric Synthesis of Allene Carboxyliclate through Dynamic Kinetic Resolutions***.** (**manuscript communicated**).

Jul, 2014 – Aug, 2019 **Ph. D.,** Synthetic Organic Chemistry, Indian Institute of Technology Kharagpur, India.

- Developed a low temperature strategy for C–C bond formation through transition metal catalyzed C–H allylation strategy.
- Significant contribution has been made to the C–N bond formation, by developing a modern catalytic approach for amide synthesis through an aldehyde C–H bond activation. This leads to synthesize wide range of biologically important molecules.
- A benign catalytic method has been developed to synthesize biologically important ***Z*-Enamide**, through a stereo controlled manner.
- Considering the environmental issues of every chemical synthesis, we have first developed a water medium iridium catalysis for the synthesis of wide range of biologically important **Chromon** derivatives, utilizing various **diazo-ketones**.
- A complete training has been gained for various metal catalyst synthesis and its utilizations through range of catalysis.

May, 2012 – Apr, 2013: **M. Sc.,** Project, Synthetic Organic Chemistry, Indian Institute of Technology Madras, India.

- Paved a new strategy for the synthesis of Thiourea based Organo-Catalyst.
- Explored the basic concept of asymmetric catalysis through the newly designed catalyst in a pragmatic way.

TEACHING EXPERIENCE:

July 2014 – May 2018: **Teaching Assistantship,** Department of Chemistry, Indian Institute of Technology Kharagpur, India.

- Assisted practical classes for undergraduate student, B. Tech. (1^{st}, 2^{nd} semesters), as a part of teaching assistance ship (TA).
- Two-year theory teaching for undergraduate student, B. Tech. (7^{th}, 8^{th} semesters), as a part of teaching assistance ship (TA).

  Sub: Basic stereo chemistry, metal catalysis, basic **NMR** course (**^{1}H, ^{13}C, DEPT**), (Class strength ~50 students).

AWARDS & HONORS:

- ICReDD, Hokkaido University post-doctoral fellowship (Apr-2023),
- Tohoku University post-doctoral fellowship (Apr-2022),
- Fudan University post-doctoral fellowship (Sep-2019), CAS.
- Full time research fellowship (Jul-2014 to Mar-2019) by IIT Kharagpur, India.
- Full time junior research fellowship (May-2013 to Apr-2015), UGC, India.
- Graduate Aptitude Test in Engineering (GATE, Dec-2013).
- Awarded IIT Madras Merit Scholarship during M.Sc. (Aug-2011 to May-2013), India.
- CSIR-UGC National Eligibility Test (NET) (Dec-2012).
- CSIR-UGC National Eligibility Test (NET) (Jun-2012).
- Joint Admission Test for MSc (JAM) 2011.

RESEARCH ACHIEVEMENTS (Publications):

9. Wei-Feng Zheng, **Suvankar Debbarma**, Yuling Li, Jie Wang, Wanli Zhang, Hui Qian, Yin-Long Guo and Shengming Ma. Metal-Catalyzed Enantioselective Carboxylation Boosted by Aryl Bromides. (Communicated).

8. **Suvankar Debbarma**, Hiroki Hayashi, Yamato Ueno, Wataru Kanna, Kosaku Tanaka, III, and Tsuyoshi Mita. Photoredox-Catalyst-Free Carboxylation of Unactivated Alkenes in DMSO: Synthesis of Polycyclic Indole Derivatives and Aliphatic Acids. *Org. Lett.* **2024**, 26, 10897–10902. https://doi.org/10.1021/acs.orglett.4c04051

7. Saeesh R. Mangaonkar, Hiroki Hayashi, Wataru Kanna, **Suvankar Debbarma**, Yu Harabuchi, Satoshi Maeda and Tsuyoshi Mita. γ-Butyrolactone Synthesis from Allylic Alcohols Using the CO_2 Radical Anion. *Precis. Chem.* **2024**, *2*, 88 - 95. https://dx.doi.org/10.1021/prechem.3c00117

6. **Suvankar Debbarma**, Md Raja SK, Biswabrata Modak and Modhu Sudan Maji. On-Water Cp*Ir(III)-Catalyzed C–H Functionalization for the Synthesis of Chromones through Annulation of Salicylaldehydes with Diazo-Ketones. *J. Org. Chem*. **2019**, *84*, 6207–6216. https://doi.org/10.1021/acs.joc.9b00418

(Invited for cover picture)

5. **Suvankar Debbarma**, Sourav Sekhar Bera and Modhu Sudan Maji. Harnessing Stereospecific Z-Enamides through Silver-Free Cp*Rh(III) Catalysis by Using Isoxazoles as Masked Electrophiles. *Org. Lett*. **2019**, *21*, 835–839. https://doi.org/10.1021/acs.orglett.8b04130
4. Sourav Sekhar Bera, **Suvankar Debbarma** and Modhu Sudan Maji. Cobalt(III)-Catalyzed Construction of Benzofurans, Benzofuranones and One-Pot Orthogonal C−H Functionalizations to Access Polysubstituted Benzofurans. *Adv. Synth. Catal*. **2018**, *360*, 2204–2210. https://doi.org/10.1002/adsc.201800298
   (*Invited for cover picture*)
3. Sourav Sekhar Bera, **Suvankar Debbarma**, Avick Kumar Ghosh, Santanu Chand and Modhu Sudan Maji. Cp*CoIII–Catalyzed syn-Selective C–H Hydroarylation of Alkynes Using Benzamides: An Approach Toward Highly Conjugated Organic Frameworks. *J. Org. Chem*. **2017**, *82*, 420–430. https://doi.org/10.1021/acs.joc.6b02516
2. **Suvankar Debbarma** and Modhu Sudan Maji. Cp*Rh^{III}-Catalyzed Directed Amidation of Aldehydes with Anthranils. *Eur. J. Org. Chem*. **2017**, *2017*, 3699–3706. https://doi.org/10.1002/ejoc.201700457
1. **Suvankar Debbarma**, Sourav Sekhar Bera, and Modhu Sudan Maji. Cp*Rh(III)-Catalyzed Low Temperature C–H Allylation of *N*-Aryl-trichloro Acetimidamide. *J. Org. Chem*. **2016**, *81*, 11716–11725. https://doi.org/10.1021/acs.joc.6b02150

CONFERENCE PARTICIPATION: (Poster & Oral)

1. ***Chemistry in house symposium (CIHS 2011)***. IIT Madras, India (Scientific Volunteer). 24-Aug-2011.
2. "Transition Metal Catalyzed Directed C-H Bond Functionalization" (**Poster**). ***OMSA (Organic Molecules Synthesis and Application) National conference 2017***. Organized by IIT-Kharagpur, India. 17-Feb-2017.
3. "Cp*Rh(III)-catalyzed chelation assisted directed amidation of aldehydes using anthranils" (**Poster**). ***256th ACS National Meeting in Boston, MA***. Organized by American Chemical Society, 19-Aug-2018.
4. "Photoredox Catalysis for the Synthesis of Polycyclic Indole Derivatives via Arylcarboxylation of Unactivated Alkenes with the CO_2 Radical Anion" (**Poster**). ***The 7th ICReDD International Symposium***. ICReDD, Hokkaido University. 18-Jan-2024.
5. "Catalytic arylcarboxylation of unactivated alkenes with CO2 radical anion toward the synthesis of polycyclic indole derivatives" (**Oral**). ***Chemical Society of Japan 104th Spring Annual Meeting***. Chiba: Nihon University, College of Science and Technology, Funabashi Campus. 19-Mar-2024.
6. "Synthesis of Polycyclic Indole Derivatives via Arylcarboxylation of Unactivated Alkenes Using the CO_2 Radical Anion Under Visible Light Photoredox Catalysis" (**Oral**). ***The 36th Banyu Sapporo Symposium***. Sapporo, Hokkaido University. 13-Jul-2024.

7. "Visible-Light Induced Photocatalyst-Free Hydro/Aryl-Carboxylation of Unactivated Alkenes Using the CO_2 Radical Anion" (**Poster**). ***List Sustainable DX Catalyst Collaborative Research Platform Second Symposium***. ICReDD, Hokkaido University. 29-Aug-2024.
8. "Solvent-Assisted, Visible-Light Induced, Photocatalyst-Free Aryl/Hydro-Carboxylation of Unactivated Alkenes Using the CO_2 Radical Anion" (**Poster**). ***The 8th ICReDD International Symposium***. ICReDD, Hokkaido University. 23-Oct-2024.

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Operating Skill: Topspin (manual for 1D, 2D **NMR**), **IR** analysis (ATR & KBr Pallet mode), **LC-MS** analysis (manual operation), **GC-MS** Analysis (manual operation). **Polari meter** (for optical rotation). **HPLC** Analysis (manual operation).

RESEARCH INTEREST:

After acquiring this broad research experience from my masters, doctoral and current post-doctoral study, I want to pursue my research on the following topics

1. Transition-metal-catalyzed/ Photo-redox- catalyzed C-C and C-Y (hetero atom) bond formation.
2. Synthesis of small biologically important molecules through asymmetric catalysis.
3. Design and synthesis of new ligand and its application for asymmetric catalysis.
4. Radical mediated C-C/C-Y couplings.

Google Scholar Link: https://scholar.google.com/citations?user=yTyJLn8AAAAJ

Research Gate Link: **https://www.researchgate.net/profile/Suvankar_Debbarma**

REFERENCES

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