Curriculum Vitae

Dr. Modhu Sudan Maji

Personal Details

Name	Modhu Sudan Maji
Designation	Associate Professor
Address	Department of Chemistry Indian Institute of Technology Kharagpur-721302, WB, India.
Telephone	+91-3222282892
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Born	13.07.1982 Nationality: Indian
Place of birth	Akna, West Bengal, India. Marital status: Married

Research

08/2019 - present	Associate Professor in the Depart. of Chemistry, IIT Kharagpur, India.
12/2013 – 07/2019	Assistant Professor in the Depart. of Chemistry, IIT Kharagpur, India.
05/2013 - 11.2013	Post Doctoral Fellow with **Prof. Martin Oestreich** at the Institute of Organic Chemistry in Technical University Berlin, Germany.
03/2010 – 04/2013	Post Doctoral Fellow under **Alexander von Humboldt Fellowship** at the Institute of Organic Chemistry under supervision of **Prof. Magnus Rueping**, RWTH Aachen University, Germany.
10/2006 – 02/2010	Ph.D. thesis with **Prof. Armido Studer** at the Westfälische Wilhelms-University of Münster, Germany. PhD thesis entitled as ´´Desymmetrization of Metallated Cyclohexadienes and Transition Metal Free Oxidative Homocoupling of Grignard Reagents``
01/2005 – 09/2006	M S thesis in the Dept of Organic Chemistry, Indian Institute of Science (IISc), Bangalore, India. The Master thesis with **Prof. Goverdhan Mehta** entitled as ´´An Exploratory Approach Towards the Bioactive Marine Natural Product Tetrodotoxin``

Publications

From Independent Research Career:

[30] S. S. Bera, and M. S. Maji*, Carbamates: A Directing Group for Selective C–H Amidation and Alkylation Under Cp*Co(III)-Catalysis, ***Org. Lett.*** **2020**, 22, 2615-2620. **(invited for cover page)**.

[29] S. Saha and M. S. Maji*, One-pot access to tetrahydro benzo[c]carbazole from simple ketones by using O2 as oxidant, ***Org. Biomol. Chem.*** **2020**, 18, 1765-1768.

[28] M. R. Sk and **M. S. Maji***, Cobalt(III)-catalyzed ketone-directed C–H vinylation using vinyl acetate, ***Org. Chem. Front.*** **2020**, 7, 19-24.

[27] S. Kundu, A. Banerjee and **M. S. Maji***, A Brønsted Acid Catalyzed Tandem Pinacol-Type Rearrangement for the Synthesis of α-(3-Indolyl) Ketones by Using α-Hydroxy Aldehydes, ***J. Org. Chem***. **2019**, 84, 16003-16012.

[26] S. Sahu, A. Roy, M. Gorai, S. Guria and **M. S. Maji***, C3-Alkenylation between Pyrroles and Aldehydes Mediated by a Brønsted Acid and a Brønsted Base, ***Eur. J. Org. Chem.*** **2019**, 6396-6400.

[25] A. Banerjee and **M. S. Maji***, A Brønsted Acid Catalyzed Cascade Reaction for the Conversion of Indoles into α-(3-Indolyl) Ketones Using 2-Benzyloxy Aldehydes, ***Chem. Eur. J.*** **2019**, 25, 11521-11527. **(Selected as Hot paper and invited for cover page).**

[24] S. Debbarma, S. S. Bera, and **M. S. 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. **(invited for cover page)**

[23] S. Debbarma, S. S. Bera and **M. S. Maji***, Harnessing Stereospecific (*Z*)-Enamides Through Silver-Free Cp*Rh(III)-Catalysis by Using Isoxazoles as Masked Electrophile, ***Org. Lett.*** **2019**, 21, 835–839.

[22] A. Banerjee, A. Guin, S. Saha, A. Mondal and **M. S. Maji***, Formal [4+2] benzannulation of 2-alkenyl indoles with aldehydes: a route to structurally diverse carbazoles and bis-carbazoles, ***Org. Biomol. Chem.*** **2019**, 17, 1822–1826. **(Selected in New Talent themed issue)**

[21] S. S. Bera, M. R. Sk, and **M. S. Maji***, Weakly Coordinating Ketone-Directed Cp*Co(III)- and Cp*Rh(III)-Catalyzed C–H Amidation of Arenes: A Route to Acridone Alkaloids, ***Chem. Eur. J.*** **2019**, 25, 1806–1811. **(Selected as Hot paper and invited for cover page).**

[20] M. R. Sk, S. S. Bera, and **M. S. Maji***, Cp*Co(III)-Catalyzed C–H Alkenylation of Aromatic Ketones with Alkenes, ***Adv. Synth. Catal.*** **2019**, 361, 585–590.

[19] S. Saha, A. Banerjee and **M. S. Maji***, Brønsted Acid Catalyzed One-Pot Benzannulation of 2-Alkenylindoles Under Aerial Oxidation: A Route to Carbazoles and Indolo[2,3-a]carbazole-Alkaloids, ***Org. Lett.*** **2018**, 20, 6920–6924.

[18] S. Sahu, B. Das, and **M. S. Maji***, Stereodivergent Total Synthesis of Hapalindoles, Fischerindoles, Hapalonamide H and Ambiguine H Alkaloids by Developing a Biomimetic, Redox-Neutral, Cascade Prins-Type Cyclization, ***Org. Lett.*** **2018**, 20, 6485-6489. (**Most 20 downloaded paper**).

[17] S. S. Bera, S. Debbarma, S. Jana, and **M. S. 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. (**Highlighted as inside cover picture**).

[16] M. R. Sk, S. S. Bera, and **M. S. Maji***, Weakly Coordinating Ketone-Directed Cp*Co(III)-Catalyzed C–H Allylation on Arenes and Indoles, ***Org. Lett.*** **2018**, *20*, 134–137.

[15] S. Debbarma and **M. S. Maji***, Cp*Rh(III)-Catalyzed Directed Amidation of Aldehydes Using Anthranils, ***Eur. J. Org. Chem.*** **2017**, 3699–3706. (**On invitation, for the virtual special issue ''Emerging Investigators from India''**).

[14] A. Banerjee, S. Sahu, and **M. S. Maji***, Benzannulation of 2-Alkenyl Indoles Using Aldehydes by Sequential-Triple-Relay Catalysis: A Route to Carbazoles and Carbazole Alkaloids, ***Adv. Synth. Catal.*** **2017**, *359*, 1860–1866.

[13] S. Sahu, A. Banerjee, and **M. S. Maji***, Transition-Metal-Free Redox-Neutral One-Pot C3-Alkenylation of Indoles Using Aldehydes, ***Org. Lett.*** **2017**, *19*, 464–467. (**Highlighted in the first issue of ''ACS Research Elements''**).

[12] S. S. Bera, S. Debbarma, A. K. Ghosh, S. Chand, and **M. S. Maji***, Cp*Co^{III}-Catalyzed *syn*-Selective C-H Hydroarylation of Alkynes Using Benzamides: An Approach Towards Highly Conjugated Organic Frameworks, ***J. Org. Chem.*** **2017**, *82*, 420-430.

[11] S. Debbarma, S. S. Bera, and **M. S. Maji***, Cp*Rh(III)-Catalyzed Low Temperature C-H Allylation of N-Aryl-trichloro Acetimidamide, ***J. Org. Chem.*** **2016**, 81, 11716–11725.

From PhD and Postdoctoral Research:

[10] Simon Wübbolt, **Modhu Sudan Maji**, Elisabeth Irran, Martin Oestreich, A Tethered Ru-S Complex with an Axial Chiral Thiolate Ligand for Cooperative Si-H Bond Activation: Application to Enantioselective Imine Reduction, *Chem. Eur. J.* **2017**, *23*, 6213.

[9] Xin Hong, Hatice Baspnar Küçük, **Modhu Sudan Maji**, Yun-Fang Yang, Magnus Rueping, and K. N. Houk, On the Mechanism and Selectivity of N-triflylphosphoramide Catalyzed (3+2) Cycloaddition between Hydrazones and Alkenes, *J. Am. Chem. Soc.* **2014**, *136*, 13769.

[8] Dixit Parmar, **Modhu Sudan Maji**, Magnus Rueping, Catalytic and Asymmetric Fluorolactonisations of Carboxylic Acids through Anion Phase Transfer, *Chem. Eur. J.* **2014**, *20*, 83.

[7] Magnus Rueping, **Modhu Sudan Maji**, Hatice Başpınar Küçük, Iuliana Atodiresei, Asymmetric Brønsted Acid Catalyzed Cycloadditions –Efficient Enantioselective Synthesis of Pyrazolidines, Pyrazolines and 1,3-Diamines from *N*-Acyl Hydrazones and Alkenes, *Angew. Chem. Int. Ed.* **2012**, *51*, 12864. (**Highlighted** in *Synfacts* **2013**, 210).

[6] Magnus Rueping, Jeremy Dufour, and **Modhu Sudan Maji**, Relay Catalysis: Combined Metal Catalyzed Oxidation and Asymmetric Iminium Catalysis for the Synthesis of Bi- and Tricyclic Chromenes, *Chem. Commun.* **2012**, *48*, 3406.

[5] Modhu Sudan Maji, Sandip Murarka, and Armido Studer, Transition-Metal-Free Sonogashira-Type Coupling of Aryl and Alkynyl Grignard Reagents by Using TEMPO as an Oxidant, *Org. Lett.* **2010**, *12*, 3878. (**Highlighted** in *Synfacts* **2010**, 1401).

[4] Modhu Sudan Maji, Thorben Pfeifer, and Armido Studer, Transition Metal Free Synthesis of Conjugated Polymers from Bis-Grignard Reagents by Using TEMPO as Oxidant, *Chem. Eur. J.* **2010**, *16*, 5872.

[3] Modhu Sudan Maji, Armido Studer, Transition-Metal-Free Oxidative Homocoupling of Aryl, Alkenyl, and Alkynyl Grignard Reagents with TEMPO, *Synthesis*, **2009**, 2467.

[2] Modhu Sudan Maji, Thorben Pfeifer, and Armido Studer, Oxidative Homocoupling of Aryl, Alkenyl, and Alkynyl Grignard Reagents with TEMPO and Dioxygen, *Angew. Chem. Int. Ed.* **2008**, *47*, 9547. (Selected as **Hot Paper**).

[1] Modhu Sudan Maji, Roland Fröhlich, and Armido Studer, Desymmetrization of Metallated Cyclohexadiene with Chiral *N-tert*-Butanesulfinyl Imines, *Org. Lett.* **2008**, *10*, 1847.

Details of the Projects/ Funding as Principal Investigator

Sl. No	Title	Amount (Lakh)	Duration	Agency	Status
1	Merging Photoredox Catalysis with Cp*Co(III): A Route to	**47.52**	14.03.2019 to 13.03.2022 (3 years)	Science and Engineering	ongoing

	Distal C–H Bond Functionalizations			Research Board, India	
2	Asymmetric Synthesis of Naturally Occurring Aromatic Abietane Diterpenoids and their Analogues by Designing Chiral Highly Acidic Brønsted Acid Catalysts	**14.7**	01.11.2017 to 31.10.2020 (3 years)	Council of Scientific and Industrial Research, India.	ongoing
3	Dual Catalysis in State of Art Designing of New Reaction Methodology	**35**	01.07.2014 to 30.06.2019 (5 years)	INSPIRE Faculty Award, DST, India	Completed
4	Cobalt(III)- and Rhodium(III)-Catalyzed Asymmetric C–H Bond Functionalization	**55**	09.10.2015 to 08.10.2018 (3 years)	Science and Engineering Research Board, India	Completed **(Grade: Excellent)**
5	Asymmetric Co-operative Dual Catalysis for the Synthesis of Functionalized Indoles derivatives	**28**	01.07.2014 to 30.06.2017 (3 years)	Startup Grant, IIT Kharagpur	completed

Academic Background

Degree	Year, Duration	Institute / University/ Board	Marks / Grade
PhD	10/2006 to 02/2010	Westfälische Wilhelms-University of Münster, Germany.	
MS (Chemical Science, Int. PhD Programme)	08/2003 to 09/2006, 3 year	Indian Institute of Science (IISc), Bangalore, India.	CGPA 6.9 /8.0 (**2nd** in Chemical Science division)
B.Sc. (Honors in Chemistry)	05/2000 to 07/2003	University of Calcutta (CU), Kolkata, India.	76.75 % (**2nd** highest in CU)
Higher Secondary (12 th standard)	05/1998 – 03/2000	West Bengal Council of Higher Secondary Education, WB, India	80.6%
Secondary Education	09/1992 – 03/1998	West Bengal Board of Secondary Education, WB, India.	79.25%

Current Research Group

Number of PhD Produced: **1** Number of PhD Ongoing: **10** Postdoctoral Fellow: **1**

Number of MSc Thesis: **3** ongoing and **13** completed

Teaching Activity

Advanced Courses for MSc & PhD Students:

1. CY51003: Spectroscopic Methods of Structure Determination (NMR, Mass, IR, UV).
2. CY 61032: Newer Asymmetric Synthesis
3. CY 60020: Advanced Heterocyclic Chemistry
4. CY49011: Advanced Organic Chemistry Laboratory

Basic Courses for B.Tech. Students:

1. CY11001: Organic Chemistry for 1st Students
2. CY00002: Basic Organic Chemistry (Preparatory-Organic).
3. CY19001: Basic Organic Chemistry Laboratory.

Awards and Fellowship

2014	**INSPIRE Faculty Award** from the Department of Science & Technology (DST), New Delhi, India.
05/2013 – 11/2013	Cluster of Excellence **UniCat** Fellowship for Postdoctoral Research at Technical University Berlin, Germany.
03/2010 – 04/2013	**Alexander Von Humboldt** Fellowship for Postdoctoral Research (two years). Postdoctoral Fellowship from RWTH Aachen University, Germany (one year).
10/2006 – 02/2010	Ph.D. scholarship of the International Graduate School of Chemistry (GSC-MS), University of Muenster, Germany.
08/2003 – 09/2006	MS scholarship of Indian Institute of Science, Bangalore, India.
2005	Passed the National Eligibility Test (NET) exam and was selected for CSIR scholarship.
05/2000 – 07/2003	**Foundation for Excellence** (FFE) scholarship, Ramakrishna Mission Residential College, Narendrapur, Kolkata, India.
2003	**First Class Second** in B.Sc. (Chemistry Honours) in the University of Calcutta, Kolkata, India.
2003	**D. K. Mitra Gold Medal** awards for securing the highest mark in chemistry department in the College (Ramakrishna Mission Residential College, Kolkata, India).

2003	Selected for pursuing the M.Sc. in the Indian Institute of Technology (IIT) Kanpur and IIT Kharagpur.

Invited Lectures

[14] Emerging Areas and Opportunities in Modern Sciences, Mahishadal Raj College, Purba Mednipur, WB, India. (07.02.2020)

[13] International Conference on Chemistry for Human Development (ICCHD2020), University of Calcutta and Heritage Institute of Technology, Calcutta, India. (09.01.2020-11.01.2020)

[12] One-Day Symposium on Young Talent in Chemical Sciences, Institute of Chemical Technology- Indian Oil Corporation Odisha Campus, Bhubaneswar. (22.11.2019)

[11] International conference on '*Chemical & Biological Sciences in Drug Discovery-2019*', Berhampur University, Berhampur, India. (08.03.2019-10.03.2019)

[10] *International Conference on Organometallic and Catalysis,* GOA. (13.12.2018-16.12.2018)

[09] *International Conference on Frontiers in Chemical Sciences* (FICS - 2018) at IIT Guwahati, India (06.12.2018-08.12.2018)

[08] *International Symposium RASAYAN 3*, Medinipur, West Bengal, India. (Nov 2018)

[07] Conference on '*Frontiers in Organic Synthesis and Catalysis* (FOSC-2018)" at IISER Kolkata, India (10-01-2018 to 11-01-2018).

[06] National conference on "*Symposium on Contemporary Facets in Organic Synthesis 2017* (CFOS-17)" at IIT Roorkee, India (22-12-2017 to 24-12-2017).

[05] National conference on '*Material Chemistry for Better Tomorrow 2017* (MCBT 2017)' at Asutosh College, Kolkata, India, India (07-11-2017).

[04] International conference on '*Recent Trends of Chemical & Biological Sciences in Medicine, Natural Product and Drug Discovery* (ICRTCBSMNPDD)-2017" at Berhampur University, Odisha, India (03-03-2017 to 05-04-2017).

[03] National conference on '*Organic Molecules: Synthesis and Applications*' at Indian Institute of Technology Kharagpur, India (17-02-2017 to 18-02-2017).

[02] *International Conference on Innovative Applications of Chemistry in Pharmacology & Technology* (IC-IACPT-2015), Berhampur University, Berhampur, India. February 06-08, 2015.

[01] National Chemical Laboratory, Pune, India, October 30th, 2012.

Research Area for Independent Career

(1) Cobalt-catalyzed C-H bond functionalizations
(2) Sequential Catalysis
(3) Design, Synthesis and Application of Tunable Nano Graphene
(4) Total Synthesis of Alkaloids