BASKER SUNDARARAJU, Ph. D

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Date of Birth: 25th July 1980
Place of Birth: Mettuppalayam (Tamil Nadu, India)

Details of Employment

Professor	July-2022 to Present	Department of Chemistry Indian Institute of Technology Kanpur, Uttar Pradesh, India
Associate Professor	June-2018 to June-2022	Department of Chemistry Indian Institute of Technology Kanpur, Uttar Pradesh, India
Assistant Professor	Oct-2013 to May-2018	Department of Chemistry Indian Institute of Technology Kanpur, Uttar Pradesh, India

Details of Professional Training and Research Experience

Postdoctoral Fellow (MPG & AvH Fellow)	Oct-2011 to Sep-2013	Prof. Alois Fürstner Max-Planck-Institut für Kohlenforschung Mülheim, Germany.
Research Exchange (IDECAT Fellow)	Aug-2010 to Sep-2010 Jul-2009 to Aug-2009	Prof. Matthias Beller Leibniz Institut für Katalyse (LIKAT) Rostock, Germany.
Research Exchange (IDECAT Fellow)	Jul-2008 to Sep-2008	Prof. Jürgen Klankenmeyer & Walter Leitner, *ITMC, RWTH,* Aachen, Germany.
Master Thesis (Indo-French Fellowship)	Sep-2007 to Jun-2008	Prof. Christian Bruneau Université de Rennes1, Rennes, France.
Research Internship (IAS fellowship)	Jul-2008 to Sep-2008	Prof. T. K. Chakraborty *Indian Institute of Chemical Technology* Hyderabad.

Educational Qualifications

Ph.D.	Institut des Sciences Chimique de Rennes Université de Rennes1, Rennes, France.	Sep-2011	Organometallics and Catalysis
M.S.	Université de Rennes1, Rennes, France.	Jul-2008 (First Class with hons)	Molecular Catalysis
B.Sc.	Bharathidasan University Tiruchirappalli, India.	May-2000 (First Class c Distin.)	Chemistry, Physics and Maths

Awards/Fellowships/Recognitions

- Invited Guest professor at LCC-Université de Toulouse III – Paul Sabatier (Oct-Nov) **2024**
- Selected for *CRSI bronze medal* **2023**
- Invited to join as *Fellow of Royal Society of Chemistry* (FRSC) **2022**
- *Guest Editor*, Frontiers in Catalysis on "*Perspectives in Organometallic Catalysis*" **2022.**
- *Founding member and Co-coordinator*, Indo-UK Sustainability Chemistry Consortium **2021**
- *Winner* of *Merck Young Scientist Award* **2019**
- Selected as Top 3 finalist for *Scopus Young Scientist award* **2019**
- Invited to be part of selection committee member for REAXYS PhD Prize, **2019**
- Invited to join as international advisory board member for open access Journal INEOS **2019**
- Invited to serve as an Associate Editor of Journal of Heterocyclic Chemistry **2019**
- Invited as Early Career Advisory Board Member by "*ACS Catalysis*" **2018 & 2019**
- Awarded "*P. K. Kelkar Young Faculty Research Award **2017***" by IITK, Kanpur, India.
- Awarded "*DAE Young Scientist Research Award **2014***" by BRNS.
- Awarded "*Thieme Chemistry Journal Award **2014***"for promising researcher worldwide.
- Selected as an organizing committee member for *Reaxys inspiring chemistry conference* **2014** held at Grinder Wald, Switzerland.
- Invited as member in *Product Guidance Team by Reaxys* (**2012**).
- *Alexander Von Humboldt fellowship* for post-doctoral research (Mar **2012** - Feb **2014**).
- Selected as a finalist *for best PhD Thesis Prize worldwide by REAXYS (**2012**).*
- *Best PhD Thesis award,* Foundation University of Rennes1, France, 16th March, **2012.**
- *Indo French Fellowship (CEFIPRA)* for Master and Graduate studies (**2007-08**, **2008** - **2011**).
- *Indian Academy of Sciences* research fellow (May 2007 – July 2007)
- *Outstanding student award* for overall excellence in academics (undergraduate) (May **2000**)

Courses Taught at IIT, Kanpur

Course No.	Title	UG/PG	No. Times offered
CHM101	General Chemistry Laboratory	Under-Graduate	02
CHM242A	Basic Inorganic Chemistry	do	02
CHM343	Inorganic Chemistry Lab 1	do	02
CHM441	Inorganic Chemistry 1	do	01
CHM631	Modern Instrumentation	Post-Graduate	02

	Techniques for Structure Elucidation		
CHM649	Principles of Inorganic Chemistry	do	02
CHM648	Chemistry of Metal Carbon Bond:	do	03
	Structure, Reactivity and Applications		
CHM655	Organometallic Chemistry and Catalysis	do	02
CHM 102	General Chemistry	Under-Graduate	01

Students Guided

No. of M.Sc. projects guided: 14
No. of Ph.D. students guided: 06
No. of Post-doc fellows guided: 08
No. of Ph.D. students presently being guided: 11 (on-going)
No. of Post-doc presently being guided: 02 (on-going)

Research Areas of Interest

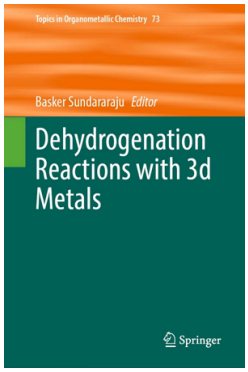
Our research program is focused on transition metals as means of achieving efficient catalytic systems for activation of carbon-hydrogen, carbon-carbon, and carbon heteroatom bonds through green and sustainable processes. We are actively pursuing C-H bond functionalizations using earth-abundant, inexpensive and non-toxic first row late transition metals, especially [Fe], [Co], [Mn] and [Ni]. We are also interested in addressing some of the challenging problems such as reductive functionalization of CO_2, biomass valorization and waste- free and sustainable transformations for production of fine chemicals.

Keywords: *Catalysis * C-H bond functionalization * Green chemistry: atom and step-economy * Cheap, non-toxic, and earth-abundant base metals*

Publications

I have published **81** papers (81 published, 3 under minor revision) and 4 patents (2009-2023) in peer-reviewed leading international journals including *Angew. Chem., Int. Ed. (7), J. Am. Chem. Soc. (1), ACS Catal (5), Chem. Sci. (1), Chem. Eur. J. (8), Chem. Commun. (3), Org. Lett. (8), Green Chem. (1), ChemSusChem (2), J. Org. Chem.(3), ChemCatChem (6), J. Catal. (1), Catal. Sci. Technol. (1), Synthesis (1), Adv. Synth. Catal. (3), Eur. J. Org. Chem. (3), Synthesis (1), Chem. Asian. J. (1), Asian. J. Org. Chem. (1), Tetrahedron Lett. (1), Org. Biomol. Chem. (1), ChemSocRev (1), Coord. Chem. Rev. (2) Tetrahedron Chem (1), Langmuir (1), Chemical Engineering Journal (1)* and these articles are cited more than >4758 times with **H-index of 38**. Please see the selected list below (*in preparation).

Independent Career



Knowledge Dissemination

- Six book Chapters
- Editing two books (One published in Jan 2024 and other book will likely be out in 2025) (Springer)
- Six Review Articles

Manuscript in press/submission/preprint

1) R. Mandal, A. Das, B. Garai, Ritama, N. Nair, **B. Sundararaju**,* "Cobalt-catalyzed Intermolecular Allylic C-H Amidation"
Manuscript under preparation, **2024**.

2) S. Pradhan, D. Satav, S. Dutta, B. Maity, L. Cavallo, **B. Sundararaju**,* "Efficient Access to Skipped Dienes and Trienes by Cobalt-Catalyzed Reductive Coupling of Alkynes and Allenyl Carbonates"
Nat. Commun. **2024**, *under revision. ChemRxiv*. **2023**, DOI: 10.26434/chemrxiv-2023-1c4px-v2

3) *S. Ghosh, B. Garai, S. S. Chauhan, B. Sundararaju,* 'N-Heterocyclic Carbene-based Covalent Organic Framework as Heterogeneous support for Base-Free, Sustainable Upcycling of CO_2'.
Chem. Sci. 2024, (under review)

4) *N. Garg, P. Dahiya, S. Mallet-Ladeira, R. Poli, B. Sundararaju, 'Mechanistic Investigations on Cp*Co(III)-catalyzed Quinoline Transfer Hydrogenation with Formic Acid'*
ACS Catal. 2024 (under review)

Peer Reviewed Publications

1) A. Das, S. Kumaran, H. S. Ravi Shankar, J. R. Premkumar, **B. Sundararaju,*** "A Dual Cobalt-Photoredox Catalytic Approach for Asymmetric Dearomatization of Indoles with Aryl Amides via C-H Activation"
Angew. Chem. Int. Ed. **2024**, e202406195. Chemrxiv. **2024**, 10.26434/chemrxiv-2024-dxz34

2) A. Das, R. Mandal, H. Subramanian, S. Kumaran, **B. Sundararaju,*** "Reversing the Regioselectivity of Asymmetric C–H Bond Annulation with Bromoalkynes Under Cobalt(III)-Catalysis"
Angew. Chem. Int. Ed. **2024**, 63, e202315005. *ChemRxiv*. 10.26434/chemrxiv-2023-1rqz1

3) C. Trotta, P. Dahiya, L. Baldinelli, G. M. Rodriguez, P. Chakraborty, G. Bistoni, F. D. Angelis, **B. Sundararaju*** and A. Macchioni,* "A Cobalt Molecular Catalyst for Hydrogen Evolution Reaction with Record Activity in Phosphate Buffered Water Solution" *ChemRxiv.* **2023**, DOI: 10.26434/chemrxiv-2023-dgth2
Catal. Sci. Technol. **2024**, DOI: 10.1039/D4CY00209A.

4) N. Garg, A. H. Chowdhury, **B. Sundararaju**,* "Chemoselective Hydrogenation of Nitroarenes over 3D-COF derived Co-nanocarbon catalyst"
Tetrahedraon Green Chem, **2024**, DOI: 10.1039/D3CC05329F

5) B. Garai, A. Das, D. Vineet Kumar, **B. Sundararaju**,* "Enantioselective C–H Bond Functionalization Under Co (III)-Catalysis"
Chem. Comm. , **2024**, 60, 3354-3369.

6) N. Garg, R. Poli*, **B. Sundararaju**,* "Mechanistic insights of the Ir-bipyridonate catalyzed aqueous methanol dehydrogenation and transfer dehydrogenation to acetophenone: Experimental and DFT study"
Eur. J. Inorg. Chem. **2024**, 27, e202300744.

7) P. Chakraborty, S. Pradhan, and **B. Sundararaju**,* "A Mechanistic Analysis of Dehydrogenation Reactions with First-row Transition Metal Complexes"
Top Organomet Chem, **2024**, *73*, 257–306.

8) N. Garg, I. Agrawal, D. Satav, D. V. Kumar, **B. Sundarraju**,* Recent Developments in Asymmetric Borrowing Hydrogen Methodology"
Tetrahedron Chem **2023**, *8*, 100054.

9) B. N. Tafese, T. Ganesh, A. Solomon, **B. Sundararaju**, N. Garg, and B. Alebachew, "Efficient Adsorptive Removal of Methylene Blue Dye from Aqueous Solution Using Eragrostis Teff Biomass-Derived Nitrogen and Phosphorus-Codoped Carbon Quantum Dots"
Langmuir, **2023**, 10.1021/acs.langmuir.3c01813

10) P. Dahiya, N. Garg, R. Poli, **B. Sundararaju**,* "Hydrogenation and Dehydrogenation of cyclic amines under Cp*Co(III)-catalysis"
Dalton Trans., **2023**, *52*, 14752-14756.

11) R. Mandal, B. Garai, B. Sundararaju,* "Bidentate-chelate assisted Cobalt-catalyzed C-H bond functionalizations"
Science of Synthesis, **2023,** *2*, 149-260.

12) S. Pradhan, P. Chakraborty, S. Paira, **B. Sundararaju**,* "Allenyl carbonates as butadiene surrogates in cobalt-catalyzed crotylation of aldehydes"
J. Org. Chem. **2023**, *88*, 5893-5899.

13) B. Garai, M. Rahamat Ali, R. Mandal, **B. Sundararaju**,* "Cp*Co(III)-catalyzed C(8)-Nucleophilic cascade cyclization of quinoline-N-oxide with 1,6-enyne"
Org. Lett. **2023**, *25,* 2018-2023.

14) P. Chakraborty, S. Pradhan, J. Richard Premkumar, **B. Sundararaju**,* "Valorization of terpenols under Iron catalysis"
J. Catal. **2023**, *421*, 309-318.

15) Singh, U. Alam, P. Chakraborty, **B. Sundararaju**, N. Verma,* "A sustainable approach for the production of formate from CO_2 using microalgae as a clean biomass and improvement using potassium-doped g-C_3N_4"
Chemical Engineering Journal, **2023**, *454*, 140303.

16) N. Garg, H. Somasundharam, P. Dahiya, **B. Sundararaju**,* "Methanol as Hydrogen Source: Room-Temperature Highly-Selective Transfer Hydrogenation of α, β-unsaturated Ketones"
Chem. Commun. **2022,** 58, 9930.

17) B. Emayavaramban, P. Chakraborty, P. Dahiya, **B. Sundararaju**,* "Iron-catalyzed α-methylation of Ketones using Methanol as C1 source under Photo-irradiation"
Org. Lett. **2022,** 24, 6219-6223.

18) P. Dahiya, A. Sarkar, **B. Sundararaju**,* "Well-defined [Cp*Co(N,O)I]-catalysts for site-selective Intramolecular C-H Amidation"
Adv. Synth. Catal. **2022,** *364,* 2642-2647.

19) R. Mandal, B. Garai, and **B. Sundararaju**,* "Weak-Chelation In C-H Bond Functionalization using 3d Metals"
ACS Catal. **2022,** *12*, 3452.

20) N. Garg, B. Garai, **B. Sundararaju**,* "Nickel-catalyzed C(sp^2)-H bond Functionalizations: Trifluoromethylation, Thiolation and Selenolylation"
Handbook of C-H bond Functionalizations. **2022** (Wiley), DOI: 10.1002/9783527834242.chf0061

21) R. Mandal, N. Barsu and **B. Sundararaju,*** "C-H Bond Alkynylation by Merging Co(III)/Organophotoredox Catalysis"
Chem. Commun. **2021**, *57,* 12167.

22) P. Chakraborty, R. Mandal, S. Paira, **B. Sundararaju**,* "C-H bond functionalization by dual catalysis: Mering high-valent cobalt and photoredox catalysis"
Chem. Commun. **2021**, *57*, 13075.

23) P. Chakraborty, R. Mandal, **B. Sundararaju**,* "Cobalt-catalyzed Carbonylation Reactions"
Pattai Chemistry of Functional group Series, **2021** (Wiley), in press.

24) U. Bandyopadhyay, **B. Sundararaju**, R. Poli, E. Manoury, "Chiral Tridentate-based Ligands"*, book Chiral Ligand" Ed. M. Diéguez,*
CRC Press*, **2021**. p* 1-28.

25) V. Kolos, Y. V. Nelyubina, **B. Sundararaju**, Dmitry S. Perekalin,* "Synthesis Of Overloaded Cyclopentadienyl Rhodium(III) Complexes via Cyclotetramerization Of tert-butyl-acetylene"
Organometallics, **2021**, *40*, 3712.

26) P. Chakraborty, **B. Sundararaju,** E. Manoury and R. Poli,* "A New Hydrogen-Borrowing Mechanism for Redox-Active Metals".
ACS Catal. **2021,** *11,* 11906-11920.

27) R. Mandal, B. Garai and **B. Sundararaju**,* "Cp*Co(III)-Catalyzed C(7)-Selective Annulation of Indoline with Alkynes"
J. Org. Chem. **2021,** 86, 9407-9417.

28) P. Chakraborty, N. Garg, R. Mandal and **B. Sundararaju,*** "Recent Developments in Asymmetric Metalloelectrocatalysis".
Coord. Chem. Rev., **2021**, *444*, 214065.

29) N. Garg, A. Sarkar, **B. Sundararaju,*** "Recent Developments on Methanol as Liquid Organic Hydrogen Carrier in Transfer Hydrogenation Reactions"
Coord. Chem. Rev., **2021**, *433*, 213728.

30) P. Dahiya, M. K. Gangwar, **B. Sundararaju,*** "Phosphine-Free Catalytic Hydrogenation of Carbonates and Polycarobnates into Diols Using High-Valent Cobalt Complexes"
ChemCatChem. **2021**, *13*, 934-939. (*Invited for front cover page*).

31) U. Bandyopadhyay, B. Sundararaju, R. Poli, E. Manoury, J.-C. Daran, "Synthesis and Crystallographic Studies of 2-(diphenylphosphinothioyl)-2-(3-oxobut-1-en-yl)ferrocene"
Acta Cryst. **2021**, E77, 853-856.

32) P. Chakraborty, N. Garg, E. Manoury, R. Poli, **B. Sundararaju,*** "C-Alkylation of Various Carbonucleophiles Under Co^{III}-Catalysis"
ACS Catal. **2020**, *10*, 8023-8031.

33) N. Garg, S. Paira, **B. Sundararaju,*** "Efficient Transfer Hydrogenation of Ketones using Methanol as Liquid Organic Hydrogen Carriers"
ChemCatChem, **2020**, *12*, 3472-3476.

34) B. Khan, V. Dwivedi, **B. Sundararaju,*** "Cp*Co(III)-catalyzed o-Amidation of Benzaldehyde with Dioxazolones using Transient Directing Group Strategy"
Adv. Synth. Catal. **2020**, *362*, 1195-1200. (*Invited for front cover page*).

35) D. Kalsi, B. Nagaraju, S. Chakrabarti, P. Dahiya, M. Rueping, **B. Sundararaju,*** "Oxidant-Free, Selective C-H and N-H bond annulation of Amides with Unactivated Olefins by Merging Cobalt and Photo-redox Catalysts"
Chem. Commun. **2019**, *55*, 11626-11629.

36) P. Chakraborty, B. Emayavaramban, M. K. Gangwar, E. Manoury, R. Poli, **B. Sundararaju,*** "Well-defined, High-valent Co-Catalyzed C-H bond Alkylation of Ketones with Secondary Alcohols"
ChemSusChem, **2019**, *12*, 3463-3467.

37) V. Trivedi, D. Kalsi, **B. Sundararaju,*** "Electrochemical-/ Photoredox Aspects of Transition Metal-Catalyzed Directed C-H Bond Functionalizations"
ChemCatChem, **2019**, *11*, 5190.

38) B. Emayavaramban, P. Chakraborty, Eric Manoury, R. Poli, **B. Sundararaju,*** "Cp*Co(III)-Catalyzed N-Alkylation of Amines with Secondary Alcohols"
Org. Chem. Front. **2019**, *6*, 852-857.

39) B. Emayavaramban, P. Chakraborty, **B. Sundararaju,*** "Cobalt-Catalyzed Reductive Alkylation of Amines with Carboxylic Acids"
ChemSusChem. **2019**, *12*, 3089-3093.

40) N. Barsu, D. Kalsi, **B. Sundararaju,*** "Site-Selective C-H Bond Carbonylation with CO_2 and Cobalt-Catalysis"
Catal. Sci. Technol. ***2018****, 8, 5963-5969.*

41) D. Kalsi, S. Dutta, N. Barsu, M. Rueping, **B. Sundararaju,*** "Room Temperature C-H bond Functionalization by Merging Cobalt- and Photo-redox Catalysis"
ACS Catal. **2018**, *8*, 8115-8120.

42) N. Rajesh, **B. Sundararaju,*** "Nickel-catalyzed C-H bond Alkoxylation of Amides with Alcohols"
Asian. J. Org. Chem. **2018**, *7*, 1368-1371.

43) M. K. Gangwar, P. Dahiya, B. Emayavaramban, **B. Sundararaju,*** "Cp*Co(III)-catalyzed Acceptorless Dehydrogenation of Secondary Alcohols"
Chem. Asian. J. ***2018****, 13, 2445-2448. (Highlighted in Chemistry views)*

44) R. Mandal, B. Emayavaramban, **B. Sundararaju,*** "Cp*Co(III)-catalzyed C-H bond Alkylation with Maleimides Using Weakly Coordinating Directing Groups"
Org. Lett. **2018***, 20,* 2835.

45) N. Rajesh, N. Barsu, **B. Sundararaju,*** "Recent Advances in C(sp^3)-H bond Carbonylation by First-row Transition Metals"
Tetrahedron Lett. **2018**, *59,* 862-868.

46) D. Kalsi, N. Barsu, **B. Sundararaju,*** "Co(III)-Catalyzed Isonitrile Insertion/Acyl-Group Migration Between C-H and N-H bonds of Arylamides"
Chem. Eur. J. **2018**, *24*, 2360-2364.

47) M. Sen, N. Rajesh, B. Emayavaramban, **B. Sundararaju,*** "Isolation of Cp*Co(III)-Alkenyl Intermediate in Efficient Cobalt-Catalyzed C-H bond Alkenation with Alkynes"
Chem. Eur. J. **2018**, *24*, 342-346.

48) N. Barsu, B. Emayavaramban, **B. Sundararaju,*** "Linear Selective C-H bond alkylation with Activated Olefins Catalyzed by Cp*Co(III)" (Selected as VIP article)
Eur. J. Org. Chem. **2017**, 4370-4374.

49) M. Sen, P. Dahiya, J. R. Premkumar, **B. Sundararaju,*** "Dehydrative Cp*Co(III)-Catalyzed C-H Bond Allenylation"
Org. Lett, **2017**, *19*, 3699-3702.

50) R. Mandal, **B. Sundararaju,*** "Cp*Co(III)-catalyzed annulation of carboxylic acids with alkynes"
Org. Lett., **2017,** *19*, 2544-2547.

51) D. Kalsi, N. Barsu, P. Dahiya, **B. Sundararaju,*** "C-H and N-H bond Annulation of Benzamide with Isonitrile Catalyzed by Cobalt (III)"
Synthesis, **2017,** DOI: 10.1055/s-0036-1589011.

52) N. Barsu, S. K. Bolli, **B. Sundararaju,*** "Cobalt Catalyzed Carbonylation of Unactivated C(sp^3)-H bonds"
Chem. Sci. **2017**, *8*, 2431-2435.

53) Emayavaramban, M. Sen, **B. Sundararaju,*** "Iron Catalyzed Sustainable Synthesis of Pyrrole"
Org. Lett. **2017**, *19*, 6-9.

54) M. Sen, R. Mandal, A. Das, D. Kalsi, **B. Sundararaju,*** "Cp*Co(III)-Catalyzed bis-Isoquinolones Synthesis via C-H Annulation of Arylamide with 1,3-diyne"
Chem. Eur. J. **2017**, *23*, 17454-17457.

55) D. Kalsi, R. A. Laskar, J. R. Premkumar, **B. Sundararaju,*** "C-8 Selective Allylation of Quinoline: A case study of β-hydride vs β-hydroxy elimination"
Org. Lett. **2016,** *18*, 4198-4201.

56) N. Barsu, Md. Atiur Rahman, M. Sen, **B. Sundararaju,*** "Cp*Co(III) Catalyzed C(sp^3)-H bond Amidation of 8-Methylquinoline"
Chem. Eur. J. **2016**, *22*, 9135.

57) M. Sen, B. Emayavaramban, N. Barsu, J. Richard Premkumar, **B. Sundararaju,*** "Cp*Co(III) Catalyzed C(sp^3)-H Bond Activation: A Highly Stereo- and Regioselective Alkenylation of 8-Methylquinoline with Alkynes"
ACS Catal, **2016**, *6*, 2792-2796.

58) B. Emayavaramban, M. Roy, **B. Sundararaju,*** "Iron Catalyzed Allylic Amination Directly from Allylic Alcohols"
Chem. Eur. J. **2016**, *22*, 3952-3955.

59) B. Nagaraju, M. Sen, J. Richard Premkumar, **B. Sundararaju,*** "Cobalt (III) catalyzed C-8 selective C-H and C-O coupling of quinoline N-oxide with internal alkynes via C-H activation and oxygen atom transfer"
Chem. Commun. **2016,** *52*, 1338-1341.

60) D. Kalsi, **B. Sundararaju,*** "Cobalt catalyzed C-H and N-H bond annulation of sulfonamide with alkyne: Rapid access to Benzosultam derivatives"
Org. Lett. **2015,** *17*, 6118-6121.

61) M. Sen, D. Kalsi, **B. Sundararaju,*** "Cobalt (III) Catalyzed Dehydrative [4+2] Annulation of Oxime with Alkyne by C-H and N-OH activation"
Chem. Eur. J. **2015**, *21*, 15529-15533.

62) B. Nagaraju, D. Kalsi, **B. Sundararaju,*** "Carboxylate assisted Ni-catalyzed C-H bond allylation of amides"
Chem. Eur. J. **2015,** *21*, 9364-9368.

Post-Doc

63) **B. Sundararaju,** A. Fürstner,* "A trans-selective hydroboration of internal alkynes"
Angew. Chem. Int. Ed. ***2013,*** *52, 14050-14054. (*Selected as VIP article, and higlighted in *synfacts,* **2014,** *3,* 267)

64) K. Radkowski, **B. Sundararaju**, A.Fürstner,* "A Functional-Group-Tolerant Catalytic *trans* Hydrogenation of Alkynes"
Angew. Chem. **2013**, *125,* 373; *Angew. Chem. Int. Ed.* **2013,** *52,* 355. *(Jubilee issue)*

- Highlighted in *Chemical & Engineering News, 90(38), September 17,* ***2012***
- Highlighted in *Angew. Chem.* ***2013****, 125, 836; Angew. Chem. Int. Ed.* **2013**, *52,* 806.
- Highlighted in *Synfacts,* **2013,** *9,* 398

Ph.D

65) **B. Sundararaju,** T. Sridhar, M. Achard, G. V. M. Sharma, C. Bruneau,* "Ring Closing and Macrocyclization of β-Dipeptides by Olefin Metathesis"
Eur. J. Org. Chem. ***2013****, 6433-6442.*

66) Z. Sahli, **B. Sundararaju**, M. Achard, C. Bruneau,* "Selective Carbon-Carbon Bond Formation : Terpenylations of Amines involving hydrogen Transfers",
Green Chem. **2013**, *15*, 775.

67) **B. Sundararaju**, M. Achard, C. Bruneau,* ''Activation of π-allylic alcohols by transition metal catalysts',
Chem. Soc. Rev. ***2012****, 41, 4467.*

68) T. Boudiar, Z. Sahli, **B. Sundararaju**, M. Achard, Z. Kabouche, H. Doucet, C. Bruneau,* "Isoquiolines derivatives via stepwise regioselective sp^2 and sp^3 C-H bond functionalization"
J. Org. Chem., ***2012****, 77,* 3674.

69) H. Srour, K. Abidi, Z. Sahli, **B. Sundararaju**, N. Hamdi, M. Achard and C. Bruneau,* "Dendralenes preparation via ene-yne cross-metathesis from in situ generated 1,3-enynes"
ChemCatChem, ***2011****, 3,* 1876.

70) Z. Sahli**, B. Sundararaju,** M. Achard and C. Bruneau,* "Ruthenium catalyzed reductive amination of allylic alcohols",
Org. Lett. **2011**, *13,* 3964.

71) **B. Sundararaju**, M. Achard, G. V. M. Sharma, C. Bruneau,* "sp^3 C-H bond functionalisation with Ru(II) catalysts and C(3) alkylation of cyclic amines",
J. Am. Chem. Soc. **2011**, *130,* 10340. *(*Highlighted in *Synform, 2011/11 (Synlett (18) , pp. A102-103))*

72) X.-F. Wu, **B. Sundararaju**, P. Anbarasan, H. Neumann, P. H. Dixneuf, and M. Beller,* "Palladium-catalyzed Cyclocarbonylation of Aryl Bromides/Triflates and Benzyl Acetylenes to Furanones"
Chem. Eur. J. **2011**, *17,* 8014.

73) X.-F. Wu, **B. Sundararaju**, H. Neumann, P. H. Dixneuf, M. Beller,* "A General Palladium-Catalyzed Carbonylative Sonogashira Coupling of Aryl Triflates"
Chem. Eur. J. **2011***, 17,* 106-110.

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Patents

1) **B. Sundararaju**, A. Fürstner, "Process for the *Trans*-selective Hydroboration of Internal Alkynes" European Patent EP 2 857 405 A1 (01.10.2013); US Patent: US20160244466A1.

2) **B. Sundararaju**, S. Ghosh, B. Garai, S. S. Chauhan, "*Process for the Conversion of CO2 to Oxymethylene Ethers*" **2024**, provisional patent submitted (2024).

3) **B. Sundararaju**, S. Paira, S. S. Chauhan, T. Ghazal, '*Mn-Cinchonidine based catalyst, its process for preparation and Application thereof*'. provisional Indian patent submitted (2024).

4) **B. Sundararaju,** A. Keerthi, T. B. Shibi, Nelofer, M. Dinachandra Singh, D. Vineet Kumar, S. Ghosh, '*Polymer–Covalent Organic Framework Composite Solid-State Electrolyte and its Method of Preparation Thereof*'. Provisional Indian Patent submitted (202411058507).

Contributions to the Institute

- Setting up research Laboratory (2014)
- Graduate Seminar (SOTA) In-charge (2015 & 2017)
- Student councilor for Chemistry Department (2016)
- Warden-in-charge, Hall of Residence 1 (2016-2020)
- In-charge, NMR Facility, (2016-2020)
- Chairman, Staff-Gymkhana, IIT Kanpur (Since 2019-2021)
- Warden-in-charge, Hall of Residence 7, (May 2023 - Mar 2024)

Contributions outside the Institute (National/International)

- Selection committee member for *Reaxys PhD Prize* (2019 & 2020-21)
- Associate Editor, *Journal of Heterocyclic chemistry* (2019-till date)
- Early Career Advisory Board Member for *ACS Catalysis (2018-2020)*
- Invited as member in Product Guidance Team by *Reaxys* (2012-till date)
- International organizing committee member for *Reaxys conference* at Grinderwald (2014)
- Selection committee member for *Reaxys PhD Prize* (2014-15)
- Reviewer for Research Proposal from National and International funding agencies
- Reviewer for Various publishing house including RSC, Nature, ACS and Wiley and reviewed more 150 papers in the last 3 years.
- Outreach activity at various government underprivileged schools at southern part of Tamilnadu.

Invited Talks Conferences/ Discussion Meetings (National/International)

1. **Basker Sundararaju**, 6th International conference on Organometallics and Catalysis (OM&CAT-6), 15-18 Aug, 2024, Nankai, China.

2. **Basker Sundararaju**, International Conference on Organometallic Chemistry (ICOMC), 14-18 July 2024, Agra, India.
3. **Basker Sundararaju**, Catalyzing Nanoscience for Greener Innovation, 7-8 Feb, 2024, C. T. Thomas Elizabeth College for Women, Chennai.
4. **Basker Sundararaju**, IGSTC workshop on Engineering for Sustainable and Resilient Development, 18-20 Jan, 2024, IIT Mandi. Himachal Pradesh, India.
5. **Basker Sundararaju**, Synthesis, Catalysis and Chemical Biology, 18-19, Jan 2024, ICT Bubaneshwar, India.
6. **Basker Sundararaju**, Modern Trends in Inorganic Chemistry, 14-17 Dec, 2023, IISc, Bangalore, India.
7. **Basker Sundararaju**, Advances in Sustainable Catalysis, 13-16 Feb 2023, KAUST, Saudi Arabia.
8. **Basker Sundararaju**, Indo-UK Symposium for Enabling Chemical Technologies for Sustainability, 18-19, Jan 2023, Queen Mary London, UK.
9. **Basker Sundararaju**, School of Chemistry, University of Manchester, UK, 17th Jan 2023.
10. **Basker Sundararaju**, International symposium on Green chemistry and catalysis (GreenCat), 19-22 Apr, 2022, Rennes, France.
11. **Basker Sundararaju,** Laboratoire de Chimie Coordination (LCC), 25th Apr, 2022, Toulouse, France.
12. **Basker Sundararaju**, International Conference on Organometallic Chemistry and Catalysis (ICOC-II), 7-10 Mar, 2020, Goa, India.
13. **Basker Sundararaju**, C(sp^3)-H bond Functionalization under Cobalt Catalysis, International Conference on Frontiers in Chemical Sciences, (ICFCS) 3-5 March, 2020, Karunya University, Coimbatore, India.
14. **Basker Sundararaju**, Sustainable Molecular Architectures Under High-valent Cobalt Catalysis, 12-13, Jan 2020, NCL Pune, India.
15. **Basker Sundararaju**, 'Does oxidation state matters in (De)hydrogeation Catalysis' International Conference on Chemistry for Human Development (ICCHD 2020), 9-11 Jan, 2020, Kolkata, India
16. **Basker Sundararaju**, C-H bond Functionalizations by Merging Cobalt and Photoredox Catalysis, 49th Naito Symposium 2019, 2nd Jul - 5th July, **2019** University of Hokkaido, Sapporo, Japan.
17. **Basker Sundararaju**, C-H bond Functionalizations under Cobalt Catalysis (Invited Lecture), Hokkaido Summer Symposium on Catalysis for Organic Synthesis 2019, 30th June – 2nd Jul, **2019** University of Hokkaido, Sapporo, Japan.
18. **Basker Sundararaju**, 'Dual-catalytic approach for C-H bond functionalizations' Recent Trends and Advnacements in Chemical Science, (RTACS-2019), 29th Dec – 31st Mar, **2019**, University of Delhi, Delhi, India.
19. **Basker Sundararaju**, 'Dual-catalytic approaches for Sustainable Molecular Architectures' International Conferences on Chemical Sciences and Nanomaterials, (ICCSN-2019), 7th Dec – 9th Mar, **2019**, Vellore Institute of Technology, Vellore, India.
20. **Basker Sundararaju**, 'Sustainable C-H bond Functionalization by Merging Cobalt- and Photo-redox Catalysis' International Conference on Organometallics and Catalysis, (ICOC-2018), 13th Dec – 16th Dec, **2018**, Goa, India.
21. **Basker Sundararaju**, 'Sustainable C-H bond Functionalization by Merging Cobalt- and Photo-redox Catalysis' Inter-Disiplinary Explorations in Chemistry (I-DEC 2018), 6th Dec - 8nd Dec, **2018**, IISER, Bhopal, India.

22. **Basker Sundararaju**, 'Efficient C-H bond Functionalization under Cobalt Catalysis' International Symposium on Main-group Molecules and Materials (MMM-2018), 28th Oct – 30th Oct, **2018**, IISc, Bangalore, India.
23. **Basker Sundararaju**, "C(sp^3)-H bond Functionalization under Cobalt-Catalysis" National Seminar on Organic Transformations and Catalysis (NSOTC-2018), 27th Sep, **2018**, CSIR-CSMCRI, Bhavnagar, Gujarat, India.
24. **Basker Sundararaju**, 'Environmentally benign Transformations under Cobalt Catalysis' invited lecture at the department of Chemistry, 3rd Sep, **2018**, Osaka University, Japan.
25. **Basker Sundararaju**, 'Sustainable C-H bond Functionalization Under Cobalt Catalysis' International symposium on C-H bond functionalization, (ISCHA4), 30th Aug - 2nd Sep, **2018**, Yokohama, Japan.
26. **Basker Sundararaju**, 'C-H bond Carbonylation Using CO_2 Under Cobalt Catalysis' International Conference on OrganoMetallic Chemistry (ICOMC), 14th – 18th July, **2018**, Florence, Italy.
27. **Basker Sundararaju**, 'C-H bond Carbonylation using CO surrogates under cobalt catalysis' Advances in Organometallic and Bio-organometallic Chemistry (AOBOC), 20th -21st Feb, **2018**, ICT, Mumbai, India.
28. **Basker Sundararaju**, 'High-valent Co(III)-catalyzed C-H bond Functionalization' International Conference on Chemistry for Human Development (ICCHD), 8th – 10th Jan, **2018**, Kolkotta, India
29. **Basker Sundararaju**, 'Site-Selective C-H bond Functionalization catalyzed by Co(III)' International conference on colloborative and cooperative symposium (ICCCS), 16th – 18th Dec, **2017**, University of Hyderabad, Hyderabad, India.
30. **Basker Sundararaju**, 'C(sp^3)-H bond Functionalization under cobalt catalysis' Modern Trends in Inorganic Chemistry (MTIC), 10th – 14th Dec **2017**, IISER Pune, India.
31. **Basker Sundararaju**, 'Cobalt-Catalyzed C-H bond Functionalization' Indo-US workshop on Organometallics, 7th – 9th Dec **2017**, Lonovala, India.
32. **Basker Sundararaju**, "Say No to an Answer : The rise of cobalt for C-H bond functionalization" Advances in Organic Synthesis, (AOS 2017), 14th Feb, **2017**, NCL Pune, India.
33. **Basker Sundararaju**, "Substrate Activation Strategy Through Base Metal Catalysis" (NTAC 2017), 9th – 11th Feb **2017** Kochi, Kerala, India.
34. **Basker Sundararaju**, "Sustainable Processes through C-H bond Functionalizaiton", Frontiers in Chemical Sciences, 6th - 7th Jan, **2017**, Vivekananda College, Tiruchengodu, India.
35. **Basker Sundararaju**, "Cobalt-Catalyzed C(sp^3)-H bond Functionalisation" 1st Frontiers in Organometallic Chemistry, 2nd - 5th Dec, **2016**, Trivandrum, India.
36. **Basker Sundararaju**, "C-H bond functionalizations with Cobalt(III) Catalysts" 11th July, **2016**, Institut des Sciences Chimiques de Rennes, Université de Rennes1, Rennes, France.
37. **Basker Sundararaju**, "Sustainable molecular architecture through C-H bond functionalizations" International Conference on Coordination Chemistry (ICCC 2016), 5th July, **2016**, Brest, France
38. **Basker Sundararaju**, "Cobalt-Catalyzed C-H bond functionalizations" 29th June, **2016**, Université de Toulouse, Toulouse, France.
39. **Basker Sundararaju**, "Cobalt-Catalyzed C-H bond functionalizations" International symposium on C-H bond functionalization, (ISCHA3), 30th May – 2nd June **2016**, Université de Montréal, Canada.

40. **Basker Sundararaju**, *"Cobalt catalysis: From C-H bond functionalization to complex molecular synthesis through sustainable process"* Indo-French symposium on Catalysis and Sustainable chemistry, 5th Nov, 2015, Hyderabad, India.
41. **Basker Sundararaju**, "Against the Rules : Mechanistic investigation of *trans*-hydrogenation of internal alkynes", Green Catalysis symposium 28th March, **2014**, Maduarai Kamarajar University, Madurai, India.
42. **Basker Sundararaju,** "*A trans-selective reductive functionalization of internal alkynes*", ICMB **2014**, Bishop Heber College, Tiruchirappalli, on 11th Jan **2014**, India
43. **Basker Sundararaju,** "A functional group tolerant *trans*-selective hydrogenation of alkynes", **Reaxys Conference**, Grinderwald, on 22nd Sept, **2013**, Switzerland.
44. **Basker Sundararaju,** "Catalysis: A multifaceted-approach for sustainable process" **Indian Institute of Technology (IITK)**, Kanpur, on 17th Apr, **2013**, India.
45. **Basker Sundararaju,** Mathieu Achard, G V M Sharma, Christian Bruneau and Pierre H Dixneuf, "Multiple facets of catalysis: From sp^3 C-H bond functionalization to Hydrogen generation for sustainable process" **Indian Institute of Technology (IITB)**, Mumbai, on 25th Aug, **2011**, India.

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