BASKER SUNDARARAJU

Assistant Professor

PERSONAL PROFILE

Current Address

Department of Chemistry,
Indian Institute of Technology Kanpur,
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Permanent Address

3/40 Kaikolar Street
Mettuppalayam 621210
Musiri – Taluk
Trichy – District
TamilNadu, India.

Date of Birth: 25 July 1980

Sex: Male

ACADEMIC POSITION

- Assistant professor Since Oct 2013
  Indian Institute of Technology Kanpur, Kanpur, India.

RESEARCH EXPERIENCE

- *Post Doctoral Fellow (MPG Fellow) Oct 2011 –Feb 2012*
  Max Planck Institut für Kohlenforschung, Mülheim an der Ruhr, Germany.
  Advisor: Prof. Alois Fürstner
- *Post Doctoral Fellow (AvH Fellow) Mar 2012 –Till date*
  Max Planck Institut für Kohlenforschung, Mülheim an der Ruhr, Germany.
  Advisor: Prof. Alois Fürstner

EDUCATION

- *Ph.D., in Organometallics and Catalysis, September 2011 (Trés honorable – summa cum laude)*
  Université de Rennes, France.
  Advisor: Prof. Christian Bruneau and Dr. Mathieu Achard
- *International Master in Advanced Organometallics and Catalysis, 2008 (Mention Bien)*
  (Promotion Robert Grubbs)
  Université de Rennes1, France.
- *Master of Sciences, General Chemistry, 2007 (I class with distinction)*
  St. Joseph's College, Bharathidhasan University
  Tiruchirappalli, Tamilnadu, India.
- *Bachelor of Sciences, 2000 (with Hons)*
  Bharathidhasan University, Tiruchirappalli, Tamilnadu, India.

HONORS AND AWARDS

- Awarded "*DAE Yound Scientist Research Award **2014***" by BRNS. (Since joined in iitk)
- Awarded ''*Thieme Chemistry Journal Award **2014***'' (The award is given to promising young chemists around the world) (Since joined in iitk)
- Selected as an organizing committee member for Reaxys inspiring chemistry conference **2014**.
- Selected for *Lindau Nobel Laureate meeting, **2013** by AvH foundation and Lindau committee* (2013)
- Invited as member in *Product Guidance Team by Reaxys* (**2012**)
- *Selected as a finalist for best PhD thesis prize be REAXYS,* 19th Aug, Philadelphia, USA, **2012**. (http://inspiringchemistry.reaxys.com/phdprize).
- *Best Phd Thesis award,* Foundation University of Rennes1, France, 16th March, **2012**.
- *Alexander Von Humboldt fellowship* for post doctoral research (Mar 2012 – Feb 2014)
- *Max Planck Group Fellowship* for postdoctoral research (Oct 2011 – Feb 2012)
- *European Network Fellowship* (NoE) for short research stay at Germany, (Jul- Sep 2010)
- *Indo French Fellowship (CEFIPRA)* for Graduate studies, (Oct 2008 – Aug 2011)
- *French embassy fellowship,* Master research fellowship (Sep 2007 – Aug 2008)
- *Indian Academy of Sciences* research fellow (May 2007 – July 2007)
- *Outstanding student award* for overall excellence in academics (undergraduate) (May 2000)

PUBLICATIONS

I have published 22 papers and 1 patent (2009-2015) in peer-reviewed leading international journals including *Angew. Chem. Int. Ed.(4), J. Am. Chem. Soc. (*1*), Chem.Eur. J (*4), *Chem. Commun. (*2), *Green Chem*. (1), *Org. Lett (2)*, J. Org. Chem.(1), *ChemCatChem.(2), Adv. Synth. Catal. (*1), Eur. J. Org. Chem. (2), *Org. Biomol. Chem. (1),* ChemSocRev (1) and these articles are cited more than 551 times with H-index of 12 (as on 08.12.2015; Source: Scopus). Please see the detailed list below.

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1) 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*. **2015,** manuscript in press….
2) 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,** Manuscript in press**…**
3) 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.
4) B. Nagaraju, D. Kalsi, **B. Sundararaju*,** "Carboxylate assisted Ni-catalyzed C-H bond allylation of amides" *Chem. Eur. J.* **2015,** *21*, 9364-9368. (Since joined in iitk, work done in Kanpur)
5) **Basker sundararaju,** Alois Fürstner**, "**A *trans*-selective hydroboration of internal alkynes" *Angew. Chem. Int. Ed.* **2013,** *52*, 14050-14054 (Since Joined in IITK, work done in Germany)

- *Selected as VIP article* VIP
- Higlighted in *synfacts,* **2014***, 3, 267.*

6) **Basker Sundararaju,** Tailor Sridhar, Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau. "Ring Closing and Macrocyclization of β-Dipeptides by Olefin Metathesis", *Eur. J. Org. Chem.* **2013**, 6433-6442. (Dedicated to **Prof. Teruaki Mukaiyama in celebration of the 40th anniversary of the Mukaiyama aldol reaction)**

7) Zeyneb Sahli, **Basker Sundararaju**, Mathieu Achard, Christian Bruneau, ''Selective Carbon-Carbon Bond Formation : Terpenylations of Amines involving hydrogen Transfers'', *Green Chem*. **2013**, *15*, 775.

8) Karin Radkowski, **Basker Sundararaju**, Alois 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 by *Chemical & Engineering News*, 90(38), September 17, **2012**
    - *Most accessed article in Sep,* **2012.**
    - *Selected as VIP article* VIP
    - Highlighted in *Angew. Chem*. **2013**, *125*, 836; *Angew. Chem. Int. Ed.* **2013**, *52*, 806.
    - Highlighted in *Synfacts*, **2013**, *9*, 398

9) **Basker Sundararaju**, Mathieu Achard, Christian Bruneau, ''Activation of *π*-allylic alcohols by transition metal catalysts', *Chem. Soc. Rev*. **2012**, *41*, 4467.
    - *Top Ten most accessed article in May, 2012*

10) Tarek Boudiar, Zeyneb Sahli, **Basker Sundararaju**, Mathieu Achard, Zahia Kabouche, Henri Doucet, Christian Bruneau. "Isoquiolines derivatives via stepwise regioselective sp^2 and sp^3 C-H bond functionalization" *J. Org. Chem.*, **2012**, *77*, 3674.

11) Hassan Srour, Kaouther abidi, Zeyneb Sahli, **Basker Sundararaju**, Naceur Hamdi, Mathieu Achard and Christian Bruneau. "Dendralenes preparation via ene-yne cross-metathesis from in situ generated 1,3-enynes" *ChemCatChem*, **2011**, *3*, 1876.
    - *Invited for cover page, 2011.*

12) Zeyneb Sahli**, Basker Sundararaju,** Mathieu Achard and Christian Bruneau. "Ruthenium catalyzed reductive amination of allylic alcohols", *Org. Lett.* **2011**, *13*, 3964.

13) **Basker Sundararaju**, Mathieu Achard, Gangavaram. V. M. Sharma, Christian 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.
    - *Most read article in July 2011*
    - *Highlighted in Synform, 2011/11* (*Synlett* (18) , pp. A102-103)

14) Xiao-Feng Wu, **Basker Sundararaju**, Pazhamalai Anbarasan, Helfried Neumann, Pierre H. Dixneuf, and Matthias Beller, "Palladium-catalyzed Cyclocarbonylation of Aryl Bromides/Triflates and Benzyl Acetylenes to Furanones" Chem*. Eur. J.* **2011**, *17*, 8014.
15) Xiao-Feng Wu, **Basker Sundararaju**, Helfried Neumann, Pierre H. Dixneuf, and Matthias Beller, "A General Palladium-Catalyzed Carbonylative Sonogashira Coupling of Aryl Triflates'' Chem*. Eur. J.* **2011**, *17,* 106-110.
16) **Basker Sundararaju**, Zhou Tang, Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau. "Ruthenium-Catalyzed cascade N, and C(3) dialkylation of amines with alcohols involving hydrogen auto transfer processes", *Adv. Synth Catal*. **2010**, *352*, 3141-3146
17) **Basker Sundararaju,** Tailor Sridhar, Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau. "Preparation of sugar β-amino acid derivatives with cyclic structures via ring closing metathesis", *Eur. J. Org. Chem*, **2010**, 6092-6096
18) **Basker Sundararaju**, Mathieu Achard, Bernard Demerseman, Loic Toupet, Gangavaram V. M. Sharma, Christian Bruneau, "Ruthenium(IV) Complexes featuring P,O-chelating ligands: Regioselective substitution directly from allylic alcohol", *Angew. Chem. Int. Ed.* **2010,** *49,* 2782-85.
19) Dianjun Chen, **Basker Sundararaju**, Rafael Krause, Jürgen Klankermayer, Pierre H. Dixneuf, Walter Leitner, "Asymmetric Induction by Chiral Borate Anions in Enantioselective Hydrogenation using a Racemic Rh-Binap Catalyst", *ChemCatChem*, **2010**, 2, 55-57.
20) Kassem Beydoun, Hui-Jun Zhang, **Basker Sundararaju,** Bernard Demerseman, Mathieu Achard, Zhenfeng Xi and Christian Bruneau. "Efficient Ruthenium Catalyzed synthesis of [3]-dendralenes from 1,3-dienic allylic carbonates", *Chem. Commun.* **2009**, 6580-6582.
21) Felix Gartner, **Basker Sundararaju**, Annette-Enrica Surkus, Albert Boddien, Bjorn Loges, Henrik Junge, Pierre H. Dixneuf, Matthias Beller. "Light-Driven Hydrogen Generation: Efficient Iron-Based Water Reduction Catalysts", *Angew. Chem.* **2009**, *121*, 10147-10150; *Angew. Chem. Int. Ed.* **2009,** *48,* 9962-9965.
    - *Selected as hot article*
    - Highlighted in

    http://www.innovationsreport.de/html/berichte/biowissenschaften_chemie/a_light_touch_144885.html
22) **Basker Sundararaju,** Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau. ''Ruthenium-Catalyzed selective *N,N*-diallylation and *N,N,O*-triallylation of free amino acids'' *Org. Biomol. Chem.* **2009**, *7,* 3906-3909.

PATENT

1) **Basker Sundararaju**, Alois Fürstner, " Process for the *trans*-selective hydroboration of internal alkynes" European Patent (Filed on 01.10.2013)

EXCHANGE VISITING PROGRAMMES

IDECAT exchange program (Aug 2010 – Sep 2010)

Advisor: Dr. Helfried Neumann and Prof. Matthias Beller, Leibniz Institut für Katalyse (LIKAT) Rostock, Germany.

- "Pd catalyzed controlled Carbonylation of alkynes for the selective synthesis of furanones''.
- Handling high-pressure autoclaves and coupling reaction through catalysis.

IDECAT exchange program (Jul 2009 – Aug 2009)

Advisor: Dr. Henrik Junge and Prof. Matthias Beller, Leibniz Institut für Katalyse (LIKAT) Rostock, Germany

- "Experiencing the new field of catalysis for energy through H_2-generation using Homogeneous water reduction catalysts.
- We reported the highest TON for Noble metal free catalytic system.

IDECAT exchange program **(**Jul 2008 - Sep 2008)

Advisor: Dr. Jürgen Klankermayer and Prof. Walter Leitner, Institüt für Technische Makromolekulare Chemie, RWTH Aachen, Germany

- "Enantioselective hydrogenation using rac Rh-binap catalytic system and chiral borate anion"
- Trained for handling high-pressure reactions in autoclave.

International Master Research project (Sep 2007 – Jun 2008)

Advisor: Prof. Christian Bruneau and Dr. Mathieu Achard

- Catalyse et organométalliques, Université de rennes1, France.
- Ruthenium catalyzed selective allylation of α-amino acids derivatives.

Summer Master1 Research project (May 2007 – Jul 2007)

Advisor: Dr. T. K. Chakraborty, Director, CDRI and Lucknow (Former head, org div III, Indian Institute of Chemical Technology, Hyderabad) India.

- Proline based peptides and peptidomimetics, Synthesis of cyclic peptide intermediate for pharmaceuticals.

TEACHING EXPERIENCE

- Courses taught at Indian Institute of Technology Kanpur, Kanpur.
  - CHM 648 - Chemistry of Metal bond: Structure, Reactivity and applications
  - CHM 649 - Principles of Inorganic Chemistry
  - CHM 343 - Inorganic Chemistry Laboratory
  - CHM 631 - Modern Instrumentation Techniques
  - CHM 101 – Chemistry Laboratory

INVITED LECUTURE (NATIONAL & INTERNATIONAL)

1. **Basker Sundararaju, ‘**Cobalt catalysis: From C-H bond functionalization to complex molecular synthesis through sustainable process’ Indo-French seminar on ‘Catalysis for Green and sustainable chemistry’ 4th-7th Nov, **2015**, Hyderabad, India.
2. **Basker Sundararaju**, ‘‘Against the Rules : Mechanistic investigation of *trans*-hydrogenation of internal alkynes’’, Symposium on ‘Catalysis and Catalyzed reactions’ 28th Mar, **2014**, Madurai Kamarajar University, Madurai, India.
3. **Basker Sundararaju,** ‘‘*Say No to an answer : A trans-selective reductive functionalization of internal alkynes*’’, ICMB **2014**, Bishop Heber College, Tiruchirappalli, on 11th Jan **2014**, India
4. **Basker Sundararaju,** “A functional group tolerant *trans*-selective hydrogenation of alkynes’’, **Reaxys Conference**, Grindelwald, on 22nd Sept, **2013**, Switzerland.

CONFERENCE PRESENTATION (NATIONAL & INTERNATIONAL)

5. **Basker Sundararaju,** “Catalysis: A multifaceted-approach for sustainable process” **Indian Institute of Technology (IITK)**, Kanpur, on 17th Apr, **2013**, India. (Oral)
6. **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. (Oral)
7. **Basker Sundararaju,** Mathieu Achard, G V M Sharma, Christian Bruneau and Pierre H Dixneuf, **‘‘**My personal journey towards organometallic chemistry’’ Endowment lecture, St. Joseph’s College, Tiruchirappalli, on 23rd Aug, **2011** India. (oral, Invited)
8. **Basker Sundararaju,** Mathieu Achard, G V M Sharma, Christian Bruneau, **‘‘**Synthesis of cyclic –C-liked carbo-amino esters and peptides via ring closing metathesis”, **ISOM 19**, Rennes, **2011**, France. (Poster)
9. **Basker Sundararaju,** Mathieu Achard, G V M Sharma, Christian Bruneau, “sp^3C-H bond activation with Ruthenium(II) and a β-selective C-H alkylation of amines” **PACIFICHEM**, Hawaii, **2010**, USA. (Poster).
10. **Basker Sundararaju,** Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau, “Ruthenium (IV) complexes featuring P,O-chelating ligands: regioselective substitution directly from allylic alcohol”, 3rd EuCheMS Chemistry Congress Chemistry - the Creative Force**,** Nürnberg, **2010**, Germany. (Poster).
11. Kassem Beydoun, H. –J. Zhang, **Basker Sundararaju**, Mathieu Achard, Basker Demerseman, Christian Bruneau, “Selective formation of 1,3-dienes and [3] dendralenes via ruthenium-

catalyzed elimination/allylation reactions", **OMCOS 15**, Glasgow, **2009**, United Kingdom. (Poster)

12. **Basker Sundararaju,** Mathieu Achard, Gangavaram. V. M. Sharma, Christian Bruneau, "Ruthenium catalyzed regio selective *N,N*-diallylation and *N,N,O*-triallylation from free amino acids" Annual French meeting on Organometallic chemistry, **GECOM-CONCORD**, Albé, **2009,** France. (Poster)
13. **Basker Sundararaju,** Dianjun Chen, Jürgen Klankermayer, Pierre H. Dixneuf, Walter Leitner, Asymmetric induction through Cation / anion Interaction, ITMC, Aachen, **2008**, Gemany. (Oral)
14. **Basker Sundararaju,** Mathieu Achard, Christian Bruneau, "Catalytic transformation of free amino acids via chemo and regioselective allylic substitution". **I**nternational **C**onference On **O**rgano**m**etallic **C**hemistry, (**ICOMC-23**) Rennes, **2008,** France. (Poster)
15. Mathieu Achard, **Basker Sundararaju**, H. –J. Zhang, B. Demerseman, Christian Bruneau, "Selective formation of functional 1,3-dienes via sequential ruthenium-catalyzed ene-yne metathesis-regioselective allylic substitution", **I**nternational **C**onference On **O**rgano**m**etallic **C**hemistry, (**ICOMC-23**) Rennes, **2008,** France. (Poster)