**Curriculum Vitae:** **Dr. PANKAJ CHAUHAN**

**Current Position & Address:**
Assistant Professor,
Department of Chemistry,
Indian Institute of Technology Jammu
NH-44, Near Nagrota Bypass Jagti
Jammu (J&K) India

**Email Address:** pankaj.chauhan@iitjammu.ac.in
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**Experience:**

**Assistant Professor,** Department of Chemistry, Indian Institute of Technology, Jammu (October 2017-continuing)
**Sub Group Leader** with **Prof. Dieter Enders** at RWTH Aachen University, Germany (April 2014-September 2017).
**Postdoctoral Researcher** with **Prof. Dieter Enders** at RWTH Aachen University, Germany (April 2013-March 2014).
**Research Associate** with **Prof. Swapandeep Singh Chimni** at Guru Nanak Dev University, Amritsar, India (November 2012-March 2013).

**Education:**

**Ph.D.** from Guru Nanak Dev University, India (Ph. D. Supervisor - Prof. Swapandeep Singh Chimni, Ph.D. date: 29th November, 2012). Thesis Title **- Enantioselective Carbon-Carbon Bond Formation Catalyzed by *Cinchona*-Derived Organocatalysts**

**Research Interests:**

Asymmetric Synthesis, Organocatalysis, Photochemical Organic Synthesis, Electrochemical Organic Synthesis, Synergistic Catalysis, Domino/Cascade Reactions, Mechanochemistry and Green Chemistry.

**Publications:**

**From IIT Jammu:**

1. D. Sharma, Y. Hussain, Manisha Sharma, **Pankaj Chauhan***, Electrochemical Cascade Synthesis of α-Thio-substituted Masked Aldehydes, *Green Chem.* **2020**, DOI: 10.1039/D2GC00845A.
2. Y. Hussian, D. Sharma, N. Kotwal, I. Kumar, **P. Chauhan***, Stereoselective Oxidative Mannich Reaction of Ketones with Dihydrodibenzo-oxazepines *via* a Merger of Photoredox-/Electro-catalysis with Organocatalysis. *ChemSusChem.* **2022,** https://doi.org/10.1002/cssc.202200415
3. Tamanna, Y. Hussian, D. Sharma, **P. Chauhan***, Asymmetric Synthesis of Cyclohexenone Fused Isochromans *via* Quinidine Catalyzed Domino Peroxyhemiacetalization/Oxa-Michael Addition Desymmetrization Sequence, *J. Org. Chem.* **2022**, *87*, 6397–6402.
4. Y. Hussian, Tamanna, M. Sharma, A. Kumar, **P. Chauhan***, Recent Development in Asymmetric Organocatalytic Domino Reactions Involving 1,6-Addition as a Key Step, *Org. Chem. Front.*, **2022**, *9*, 572-592 .
5. Y. Hussian and **P. Chauhan***, Catalytic Asymmetric Umpolung Reactions of Imines via 2-Azaallyl Anion Intermediates. *Org. Biomol. Chem.* 2021, **19**, 4193-4212.
6. J. Kaur, B. P. Kaur, N. Islam, **P. Chauhan**, S. S. Chimni* Stereoselective Mannich Reaction of *α*-Acetoxy-*β*-keto Esters with Isatin Imine: An Efficient Access to Vicinal Tetra-Substituted Stereocenters, *Eur. J. Org. Chem.* **2021**, 5193-5201.
7. Y. K. Nagare, I. A. Shah, J. Yadav, A. P. Pawar, R. Choudhary, **P. Chauhan**, I. Kumar*, Electrochemical Oxidative Coupling Between Benzylic C(sp3)–H and N–H of Secondary Amines: Rapid Synthesis of α-Amino α-Aryl Esters, *J. Org. Chem.* **2021,** *86* , 9682-9691.
8. Tamanna, M. Kumar, K. Joshi, **P. Chauhan***, Catalytic Asymmetric Synthesis of Isochroman Derivatives, *Adv. Synth. Catal.* **2020**, 362, 1907-1926.
9. **P. Chauhan***, N-Heterocyclic carbene catalysed umpolung reactions of imines approaching enantioselective synthesis, *Org. Chem. Front.*, **2019**, *6*, 3821-3824.

**From RWTH Aachen University:**

10. E. Jafari**, P. Chauhan**, M. Kumar, X.-Y. Chen, S. Li, C. von Essen, K. Rissanen and D. Enders, Organocatalytic Asymmetric Synthesis of Trifluoromethylated Tetrahydrocarbazoles via a Vinylogous Michael/Aldol Formal [4+2]

Annulation, *Eur. J. Org. Chem.* **2018**, 2462-2465.

11. M. Kumar, **P. Chauhan**, S. Bailey, E. Jafari, C. von Essen, K. Rissanen and D. Enders, Organocatalytic Oxa-Michael/Michael/Michael/Aldol Condensation Quadruple Domino Sequence: Asymmetric Synthesis of Tricyclic Chromanes, *Org. Lett.* **2018**, *20*, 1232-1235.
12. X.-Y. Chen, Q. Liu, **P. Chauhan** and D. Enders, *N*-Heterocyclic Carbene Catalysis via Azolium Dienolates: An Efficient Strategy for Enantioselective Remote Functionalizations, *Angew. Chem. Int. Ed.* **2018**, *57*, 3862-3873.
13. F. Vetica, **P. Chauhan**, S. Mahajan, G. Raabe, D. Enders, Asymmetric Organocatalytic Friedel–Crafts Hydroxyalkylation of Indoles Using Electrophilic Pyrazole-4, 5-diones, *Synthesis*, **2018**, 50, 1039-1046.
14. E. Jafari, D. S. Kundu, **P. Chauhan**, V. P. R. Gajulapalli, C. v. Essen, K. Rissanen, D. Enders, Organocatalytic Enantioselective Vinylogous Henry Reaction of 3,5-Dimethyl-4-nitroisoxazole with Trifluoromethyl Ketones, *Synthesis*, **2018,** *50*, 323-329.
15. U. Kaya, **P. Chauhan***, S. Mahajan, K. Deckers, A. Valkonen, K. Rissanen and D. Enders, Asymmetric Squaramide Catalyzed Domino aza-Friedel-Crafts/N,O-Acetalization Reactions Between Naphthols and Pyrazolinone Ketimines, *Angew. Chem. Int. Ed.* **2017**, 56, 15358-15362 (**Highlighted in Synfacts**).
16. **P. Chauhan**, S. Mahajan, D. Enders, Achieving Molecular Complexity *via* Stereoselective Multiple Domino Reactions Promoted by a Secondary Amine Organocatalyst, *Acc. Chem. Res.* **2017**, *50*, 2809-2821.
17. **P. Chauhan**, S. Mahajan, U. Kaya, A. Peuronen, K. Rissanen and D. Enders, Asymmetric Synthesis of Amino-Bis-Pyrazolone Derivatives *via* an Organocatalytic Mannich Reaction, *J. Org. Chem.* **2017**, *82*, 7050-7058.
18. **P. Chauhan**, U. Kaya and D. Enders, Advances in Organocatalytic 1,6-Addition Reactions: Enantioselective Construction of Remote Stereogenic Centers, *Adv. Synth. Catal.* **2017**, *359*, 888-912 (**Selected as very important paper and among the most accessed articles in 02/2017**).
19. F. Vetica, S. Bailey, **P. Chauhan**, M. Turberg, A. Ghaur, G. Raabe AND D. Enders, Desymmetrization of Cyclopentenediones *via* Organocatalytic Cross-Dehydrogenative Coupling, *Adv. Synth. Catal.* **2017**, *359*, 3729-3734.
20. F. Vetica, **P. Chauhan**, S. Dochain and D. Enders, Asymmetric Organocatalytic Methods for the Synthesis of Tetrahydropyrans and Their Application in Total Synthesis, *Chem. Soc. Rev.* **2017**, *46*, 1661-1674.
21. S. Mahajan, **P. Chauhan**, U. Kaya, K. Deckers, K. Rissanen and D. Enders, Enantioselective synthesis of pyrazolone α-aminonitrile derivatives via an organocatalytic Strecker reaction, *Chem. Commun.* **2017**, 6633-6636.
22. M. Kumar, **P. Chauhan**, A. Valkonen, K. Rissanen and D. Enders, Asymmetric Synthesis of Functionalized Tricyclic Chromanes *via* an Organocatalyzed Triple Domino Reaction, *Org. Lett.* **2017**, *19*, 3025-3028.
23. X.-Y. Chen, Q. Liu, **P. Chauhan**, S. Li, A. Peuronen, K. Rissanen, E. Jafari and D. Enders, N-Heterocyclic Carbene Catalyzed [4+2] Annulation of Enals via a Double Vinylogous Michael Addition: Asymmetric Synthesis of 3,5-Diaryl Cyclohexenones, *Angew. Chem. Int. Ed.* **2017**, *56*, 6241-6245 (**Highlighted in Synfacts**).
24. S. Li, L. Wang, **P. Chauhan**, A. Peuronen, K. Rissanen and D. Enders, Asymmetric Synthesis of five-membered Spiropyrazolones *via N*-Heterocyclic Carbene-Catalyzed [3+2] Annulations, *Synthesis* **2017**, *49*, 1808-1815.
25. **P. Chauhan,** S. Mahajan, U. Kaya, R. Puttreddy, K. Rissanen and D. Enders, Asymmetric Synthesis of Spiro β-Lactams via a Squaramide Catalyzed sulfa-Michael Addition/Dynamic Kinetic Resolution Protocol, *Adv. Synth. Catal.* **2016**, *358*, 3173-3178.
26. S. Mahajan, **P. Chauhan**, A. Kumar and S. S. Chimni, Organocatalytic Enantioselective Synthesis of *N*-Alkyl/Aryl-3-alkyl-pyrrolidine-2,5-dione in Brine, *Tetrahedron: Asymmetry*, **2016**, 27, 1145-1152.
27. U. Kaya, P**. Chauhan**, K. Deckers, R. Puttreddy, K. Rissanen, G. Raabe and D. Enders, Asymmetric Synthesis of Tetrahydrobenzofurans and Annulated Dihydropyrans *via* Cooperative One-Pot Organo- and Silver Catalysis, *Synthesis* **2016**, *48*, 3207-3216.
28. L. Wang, S. Li, **P. Chauhan**, D. Hack, A. R. Philipps, R. Puttreddy, K. Rissanen, G. Raabe and D. Enders, Asymmetric Three Component One-Pot Synthesis of Spiropyrazolones and 2,5-Chromene-diones *via* Aldol Condensation/NHC-Catalyzed Annulation Reactions, *Chem. Eur. J.* **2016**, *22*, 5123-5127.
29. S. Mahajan, **P. Chauhan**, M. Blümel, R. Puttreddy, K. Rissanen, G. Raabe and D. Enders, Asymmetric Synthesis

of Spiro Tetrahydrothiophene-Indan-1,3-Diones *via* a Squaramide-Catalyzed sulfa-Michael/Aldol Domino Reaction, *Synthesis* **2016**, 48, 1131-1138.

30. D. Hack, A. B. Dürr, K. Deckers, **P. Chauhan**, N. Seling, L. Rübenach, L. Mertens, G. Raabe, F. Schoenebeck and D. Enders, Asymmetric Synthesis of Spiropyrazolones by Sequential Organo- and Silver Catalysis, *Angew. Chem. Int. Ed.* **2016,** *55***,** 1797-1800 (**Highlighted in Synfacts**).
31. U. Kaya, **P. Chauhan**, D. Hack, K. Deckers, R. Puttreddy, K. Rissanen and D. Enders, Enantioselective synthesis of 4*H*-pyranonaphthoquinones *via* sequential squaramide and silver catalysis, *Chem. Commun.* **2016**, *52*, 1669-1672.
32. **P. Chauhan**, S. Mahajan and D. Enders, Asymmetric Synthesis of Pyrazoles and Pyrazolones Employing the Reactivity of Pyrazolin-5-one Derivatives, *Chem. Commun.* **2015**, *51*, 12890-12907 (**Among top twenty-five most accessed articles from July to September 2015**)
33. **P. Chauhan**, S. Mahajan, U. Kaya, D. Hack and D. Enders, Bifunctional Squaramides: Powerful Hydrogen-Bonding Organocatalysts for Asymmetric Domino/Cascade Reactions, *Adv. Synth. Catal.* **2015**, *357*, 253-281 (**Among the most accessed articles from April 2015 to March 2016**).
34. **P. Chauhan,** S. Mahajan, G. Raabe and D. Enders, Organocatalytic One-pot 1,4-/1,6-/1,2-Addition Sequence for the Stereocontrolled Formation of Six Consecutive Stereocenters, *Chem. Commun.* **2015**, *51*, 2270-2272.
35. **P. Chauhan** and D. Enders, Organocatalytic Quadruple Domino Reactions: an Efficient Strategy for the Asymmetric Synthesis of Complex Molecules, *The Takasago Times*, **2015**, *176*, 45-50.
36. M. Blümel, **P. Chauhan**, C. Vermeeren, A. Dreier, C. Lehmann and D. Enders, Asymmetric Organocatalytic Synthesis of Highly Functionalized Spirocyclohexane Indandiones *via* a One-Pot Michael/Michael/Aldol Sequence, *Synthesis* **2015**, *47*, 3618-3628.
37. D. Hack, M. Blümel, **P. Chauhan**, A. Phillips and D. Enders, Catalytic Conia-Ene and Related Reactions, *Chem. Soc. Rev.* **2015**, *44*, 6059-6093.
38. D. Hack, **P. Chauhan**, K. Deckers, G. Raabe and D. Enders, Combining Silver- and Organocatalysis: an Enantioselective Sequential Catalytic Approach Towards Pyrano-annulated Pyrazoles *Chem. Commun.* **2015**, *51*, 2266-2269.
39. C. Beceno, **P. Chauhan**, A. Rembiak, A. Wang and D. Enders, Brønsted Acid Catalyzed Enantioselective Synthesis of Isatin Derived N,S-Acetals, *Adv. Synth. Catal.* **2015**, *357*, 672-676. (**Among the most accessed articles in February 2015**).
40. S. Mahajan, **P. Chauhan,** C. C. J. Loh, S. Uzungelis, G. Raabe and D. Enders, Organocatalytic Asymmetric Domino Michael/Henry Reaction of Indolin-3-ones with *o*-Formyl-β-nitrostyrenes, *Synthesis* **2015**, *47*, 1024-1031. (**Among the 10 most popular articles in January 2015**).
41. **P. Chauhan** and D. Enders, *N*-Heterocyclic Carbene Catalyzed Activation of Esters: A New Option for Asymmetric Domino Reactions, *Angew. Chem. Int. Ed.* **2014**, *53*, 1485-1487.
42. **P. Chauhan**, S. Mahajan and D. Enders, Organocatalytic Carbon-Sulfur Bond Forming Reactions, *Chem. Rev.* **2014**, *114*, 8807-8864.
43. **P. Chauhan,** S. Mahajan, C. C. J. Loh, G. Raabe and D. Enders, Stereocontrolled Construction of Six Vicinal Stereogenic Centers on Spiropyrazolones *via* Organocascade Michael/Michael/1,2-Addition Reactions, *Org. Lett.* **2014**, *16*, 2954-2957.
44. **P. Chauhan**, G. Urbanietz, G. Raabe and D. Enders, Asymmetric Synthesis of Functionalized Cyclohexanes Bearing Five Stereocenters *via* a One-pot Organocatalytic Michael/Michael/1,2-Addition Sequence, *Chem. Commun.* **2014**, *50*, 6853-6855.
45. M. Blümel, **P. Chauhan**, R. Hahn, G. Raabe and D. Enders, Asymmetric Synthesis of Tetrahydropyridines *via* an Organocatalytic One-pot Multi-component Michael/aza-Henry/Cyclization Triple Domino Reaction, *Org. Lett.* **2014**, *16*, 6012-6015.
46. D. Hack, **P. Chauhan**, K. Deckers, H. Gary, M. Lucas, G. Raabe and D. Enders, Combining Silver Catalysis and Organocatalysis: A Sequential Michael Addition/Hydroalkoxylation One-Pot Approach to Annulated Coumarins,

*Org. Lett.* **2014**, *16*, 5188-5191.

47. C. C. J. Loh, **P. Chauhan**, D. Hack, C. Lehmann and D. Enders, Rapid Asymmetric Synthesis of Highly Functionalized Indanols *via* a Michael/Henry Organocascade with Submol% Squaramide Catalyst Loadings, *Adv. Synth. Catal*. **2014**, *356*, 3181-3186.

**From Guru Nanak Dev University:**

48. J. Kaur, **P. Chauhan** and S. S. Chimni, Journey Heading Towards Enantioselective Synthesis Assisted by Organocatalysts, *Chem. Rec.* **2018**, *18*, 137-153.
49. J. Kaur, **P. Chauhan** and S. S. Chimni, α,α-Dicyanoolefins: versatile substrates in organocatalytic asymmetric transformations, *Org. Biomol. Chem.* **2016**, *14*, 7832-7847.
50. A. Kumar, J. Kaur, **P. Chauhan** and S. S. Chimni, Organocatalytic Asymmetric Friedel–Crafts Reaction of Sesamol with Isatins: Access to Biologically Relevant 3-Aryl-3-hydroxy-2-oxindoles, *Chem. Asian J.* **2014**, *9*, 1305-1310.
51. **P. Chauhan** and S. S. Chimni, Organocatalytic Enantioselective aza-Friedel-Crafts Reaction of Sesamols with *N*-Sulfonylimines Catalyzed by 6'-OH *Cinchona* Alkaloids, *Tetrahedron Lett.* **2013**, *54*, 4613-4616.
52. **P. Chauhan** and S. S. Chimni, Organocatalytic Enantioselective Morita–Baylis–Hillman Reaction of Maleimides with Isatins, *Asian J. Org. Chem.* **2013**, *2*, 586-592. (**Highlighted in Chemistry Views and also featured on the inside cover of the Journal**).
53. **P. Chauhan**, J. Kaur and S. S. Chimni, Asymmetric Organocatalytic Addition Reactions of Maleimides: A Promising Approach towards the Synthesis of Chiral Succinimide Derivatives, *Chem. Asian. J.* **2013**, *8*, 328-346 (**Among the most cited articles those published in 2013-2014**).
54. **P. Chauhan** and S. S. Chimni, Organocatalytic Asymmetric Synthesis of 3-Amino-2-oxindole Derivatives Bearing a Tetra-Substituted Stereocenter, *Tetrahedron: Asymmetry* **2013**, *24*, 343-356. (**The most cited article since 2011 and the most accessed article in 2013**).
55. **P. Chauhan**, S. Singh and S. S. Chimni, D-Camphor-10-Sulfonic Acid – A Water Compatible Organocatalyst for Michael-type Friedel-Crafts Reaction of Indoles with Electron Deficient Olefins, *Ind. J. Chem. Sect. B* **2013**, *52B*, 245-251.
56. **P. Chauhan** and S. S. Chimni, Mechanochemistry Assisted Asymmetric Organocatalysis: A Sustainable Approach, *Beilstein J. Org. Chem.* **2012**, *8*, 2132-2141. (**Featured in the Thematic Series "Organocatalysis" and also among the 10 most accessed articles from December 2012 to January 2013**).
57. **P. Chauhan** and S. S. Chimni, Grinding Assisted Asymmetric Organocatalysis: A Solvent-Free Approach Towards the Construction of Vicinal Quaternary and Tertiary Stereocentres, *Asian J. Org. Chem.* **2012**, *1*, 138-141. (**Highlighted in Chemistry View and among the most frequently cited articles those published in 2012**).
58. **P. Chauhan** and S. S. Chimni, Recent Advances in Asymmetric Organocatalytic Conjugate Addition of Hetero-arenes and Arenes, *RSC Adv.* **2012**, *2*, 6117-6134.
59. **P. Chauhan** and S.S. Chimni, Aromatic Hydroxyl Group - A Hydrogen Bonding Activator in Bifunctional Asymmetric Organocatalysis *RSC Adv.* **2012,** *2*, 737-758. (**Among the 15 most downloaded articles from December 2011 to February 2012**).
60. **P. Chauhan** and S.S. Chimni, Facile Construction of Vicinal Quaternary and Tertiary Stereocenters via Regio- and Stereoselective Organocatalytic Michael Addition to Nitrodienes, *Adv. Synth. Catal.* **2011**, *353*, 3203-3212.
61. **P. Chauhan** and S. S. Chimni, Asymmetric Organocatalytic Aza-Friedel Crafts Reaction of Naphthols with *N*-Sulfonyl Imines, *Eur. J. Org. Chem.* **2011**, 1636-1640.
62. **P. Chauhan,** K. Kaur, N. Bala, V. Kumar, and S. S. Chimni, Catalyst-free and Solventless Hantzsch Ester (HEH) Mediated Reduction of Nitro-olefins at Elevated Temperature, *Ind. J. Chem. Sect. B* **2011**, *50B*, 304-309.
63. **P. Chauhan** and S. S. Chimni, Asymmetric Addition of Indoles to Isatins Catalysed by Bifunctional Modified Cinchona Alkaloids Catalysts, *Chem. Eur. J.* **2010**, *16*, 7709-7713.
64. **P. Chauhan**, *N*-Chlorosuccinimide (NCS). (**Spotlight**). *Synlett* **2010**, 1285-1286. (**Among the 10 most popular articles in May 2010**).

**Book Chapter:**

**From IIT Jammu:**

- **P. Chauhan**, S. Mahajan, X.-Y. Chen, D. Enders, Domino Processes in NHC Catalysis, in book: N-Heterocyclic Carbenes in Organocatalysis, 2019, pp.133-156, Wiley-VCH Verlag GmbH & Co. KGaA.
- S. Singh, **P. Chauhan**, A. Kumar, Quercetin, A Flavonoid with Remarkable Anticancer Activity in Frontiers in Natural Product Chemistry, 2021, Bentham Books.

**Research Group:**

- Number of Ph.D. Students: 5 (2 students have fellowship from CSIR-UGC as JRF/SRF, 1 student have fellowship from DST as INSPIRE, 1 student have fellowship from IIT Jammu-MHRD, & 1 student as JRF in project)

**Research Project:**

- Stereocontrolled Formation of Multiple Stereocenters via Organocatalytic Domino Reactions for the Desymmetrization of 2,5-Cyclohexadienones, Funding Agency: RSC, Amount: Pound 4000 (2022-2023).
- Construction of Remote Tetrasubstituted Stereocenter via Asymmetric Organocatalytic 1,6-Addition Reactions, Funding Agency: CSIR, Amount: INR 31.00 lakhs (2021-2024).
- Development of New Asymmetric Transformations via Synergistic Photoredox-Organocatalysis, Funding Agency: SERB, Amount: INR 26.67 lakhs (2019-2021)
- Development of New Hybrid Molecules to Harvest Solar Light: Applications Towards Photovoltaics and Photocatalysis, Funding Agency: IIT Jammu, Amount: INR 88.00 lakhs (2018-2021)

**Scholarships and Awards:**

1. **RSC Research Fund** in 2022.
2. **Thieme Journal Award** in 2018.
3. **DST INSPIRE Faculty Award** in 2016.
4. **Postdoctoral Fellowship** from the European Research Council (ERC) grant of Prof. Dieter Enders (April 2013).
5. Selected for "**Research in Paris**" France in 2013 (Declined).
6. Selected for "**Science without Border**" Brazil in 2013 (Declined).
7. Awarded **International Travel Grant** by DST India in 2011.

**Research Facilities Available in the Lab of Mentor:** Organic Synthesis Lab well equiped with 8 fume hoods, HPLC (Agilent), Flash Chromatography (Teledyne), Digital Polarimeter (Rudolph), Rotavapor (Buchi), Low Tempreture Reaction Bath (Eyela), Parellal Reactor (Eyela), Penn PhD Photo Reactor (Sigma-Aldrich), High Vacuum Pump (Edward and Pfeiffer), Digital Weighing Balance (Mettler Toledo), ElectraSyn (IKA), Magnrtic Stirrers (IKA), etc.

**Research Facility Available at the Institute of Mentor:** 500 MHz NMR (JEOL), HRMS (Waters), Single Crystal XRD (Brukers), EPR (Brukers), CHNO-Analyzer (Elemental), UV-Vis NIR Spectrophotometer, Microwave-Synthesizer, GCMS (Shimadzu) and FTIR (Perkin- Elmer).