



Pranav Sudersan

PhD student

- Indian
- December 8, 1992
- #1308, Isaac-Fulda-Allee 4, 55124 Mainz, Germany
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Interests

- Wetting and adhesion
- Bio-inspiration
- Interfacial science
- Nanostructured materials
- Contact mechanics

Skills

Experimental:

- AFM
- Optical microscopy
- Surface modification
- Building setups
- DSC, Rheometry

Programming:

- Python
- LABVIEW
- MATLAB
- LaTeX

Software:

- Surface Evolver
- ImageJ
- Git

Education

- 2019 – ongoing **Ph.D. in Chemistry** Max Planck Graduate Center, Mainz
Title: Understanding reversible underwater adhesion in terrestrial ladybug beetles
Supervisors: Prof. Dr. Hans-Jürgen Butt, Prof. Dr. Eduard Arzt
Projects:
 - In-vivo underwater adhesion measurements on insect legs
 - Surface tension measurement of insect secretions using AFM
 - Theoretical modelling of the mechanism of reversible adhesion
 - Adhesion setup
 - AFM
 - Surface Evolver
 - Image analysis
- 2010 – 2015 **M.Tech and B.Tech in Chemical Engineering** IIT Bombay, India
Title: Preparation and characterization of sugar-oil microemulsion glasses
Supervisors: Prof. Jyoti R. Seth
Projects:
 - Phase study of solid microemulsions based on sugar-oil mixtures
 - Structural characterization by SEM, SANS, DSC and Rheology
 - Material science
 - Experimental design

Working Experience

- 2018 **Project Assistant** Inst. of Chemical Tech., India
Projects:
 - Efficacy of soap formulations using dynamic interfacial tension
 - Interfacial science
 - Data collection
- 2016 – 2018 **Research Associate** IIT Bombay, India
Projects:
 - Synthesize Interpenetrating Polymer Network (IPN) materials
 - Model unusual self-assembly behaviour of polyelectrolytes
 - Experimental design
 - Modelling
 - MATLAB
- 2015 – 2016 **Business Data Analyst** HSBC, India
Projects:
 - Automate workflow to identify regulatory anomalies in sales
 - Statistical analysis
 - Team management

Publications & Patents

- 2022 **Pranav Sudersan**, Michael Kappl; Mechanisms of detachment in fibrillar adhesive systems. *Journal of Theoretical Biology* 2022; doi: 10.1016/j.jtbi.2022.111315
- 2021 **Pranav Sudersan**, Michael Kappl, Bat-El Pinchasik, Hans-Jürgen Butt, Thomas Endlein; Wetting of the tarsal adhesive fluid determines underwater adhesion in ladybird beetles. *Journal of Experimental Biology* 15 October 2021; 224 (20): jeb242852. doi: 10.1242/jeb.242852
- 2019 **Pranav Sudersan**, Jyoti Ravishanker Seth; Method for preparing bi-continuous interpenetrating polymer network. *Intellectual Property India*; Patent no: 390921
- under review Jiayu Song, Youmin Hou, **Pranav Sudersan**, Cheuk Wing Edmond Lam, Dimos Poulikakos, Hans-Jürgen Butt, King Lun Yeung; Inhibition of Condensation-Induced Wetting Transition by Nano-Hierarchical Surfaces

Additional Information

- GRE (2017)** Total: 326/340, Quant.: 170/170, Verbal: 156/170
- Languages**
 - English, Hindi, Malayalam (native speaker)
 - German, Spanish (learning)
- Extracurricular** playing guitar, DIY electronics, biking

References available on request

November 7, 2022

Pranav Sudersan