Vatsal Sanjay

Ph.D.

Physics of Fluids Department
University of Twente
vatsalsanjay@gmail.com
comphy-lab.org
@VatsalSanjay
VatsalSy

Date of birth Feb. 5th, 1996
Updated on February 9, 2025

Education

2018–2022 **Ph.D. (Fluid Dynamics)**
Physics of Fluids Department, University of Twente

Supervisor Prof. Dr. Detlef Lohse

Thesis *Viscous free-surface flows*, (OA) DOI: 10.3990/1.9789036554077

Graduated Doctor cum laude, met lof (with distinction).

Professional Experience

2022–2025 **Postdoctoral researcher**, *Physics of Fluids Department*
at University of Twente, Enschede, the Netherlands.

2014–2018 **Research Assistant**, *Two-Phase Flow & Instability Lab*
at Indian Institute of Technology Roorkee, India.

Personal Awards & Achievements

2024 **J. Fluid Mech. outstanding reviewer**, *top 1% of the reviewers in 2023.*

2024 **KIVI Hoogendoorn Fluid Mechanics Award**, *for the best PhD thesis defended in the academic year 2022-2023 in the Netherlands.*

2024 **Young scientist**, *at the 73rd Lindau Nobel Laureate meetings*, among the **seven** participants from the Netherlands, nominated by the Royal Netherlands Academy of Arts and Sciences (KNAW).

2022 **Doctor cum laude**, *met lof (with distinction)*, University of Twente.

2018 **Department Gold Medal**, Indian Institute of Technology Roorkee.

Service to the Community

Co-Organization

2022–Now Physics of Fluids weekly seminar (about 10 international speakers over one year with average 40 participants).

May 2025 Symposium on "Bubbles & bubbly flows" (about 75 participants).

Jun 2024 Lorentz Center workshop on "(De)Constructing Complex Contact Lines" (about 25 participants).

May 2024 35th Dutch Soft Matter meeting (about 100 participants). Received NWO Scientific Meetings and Consultations grant (Domain: Science)

Oct 2023 Flow for Future conference: 25 years of Physics of Fluids (about 200 participants).

Referee

2018–Now J. Fluid Mech. (72), Phys. Rev. Lett. (5), Phys. Rev. Fluids (2), Phys. Rev. E (6), among others.

Scientific Outreach

2020–Now Twitter account for Physics of Fluids Department, @poftwente.

2022–Now APS-DFD peer mentoring program (as a mentor).

2022–Now Skype a Scientist: interact with high-school students.

2022–2023 Physicist To-Go (APS): interact with high-school students.

2021 Panel discussion on Future of fluid dynamics

2021 Panel discussion on Research & higher education

Supervision & Teaching

Theses Supervised

PhD A. Bhargava (Topic: Inertial contact lines, ongoing since Jan '24),
A. Dixit (Topic: Non-Newtonian flows, ongoing since Jul '23),
J. Talukdar, starting in May 2025,
S. Jana, starting in June 2025.

Masters F. Hoek (UT, ongoing), J. Talukdar (UT, ongoing), V. Rosario (UvA, '24), S. van den Heuvel (UT, '23), C. H. Maurits (UvA, '23), T. Appleford (UvA, '22), S. Meuleman (UT, '20).

Bachelors M. Sent (UT, '25), N. Kuipers (UT, '23), J. Talukdar (UT, '23), T. Heijink (UT, '21), T. Kroeze (UT, '20), C. Verschuur (UT, '20), P. J. Dekker (UT, '19), L. Bruggink (UT, '19).

Teaching Assistant

2018–Now Advanced Fluid Mechanics, co-lecturer, University of Twente.

2017–2018 Two Phase Flow and Heat Transfer, Indian Institute of Technology Roorkee.

Peer-Reviewed Publications

1. **Vatsal Sanjay** and Detlef Lohse,
Unifying theory of scaling in drop impact: Forces & maximum spreading diameter,
Phys. Rev. Lett., in press (2025),
(OA) DOI: 10.48550/arXiv.2408.12714.

2. **Vatsal Sanjay**, Bin Zhang, Cunjing Lv, and Detlef Lohse,
The role of viscosity on drop impact forces on non-wetting surfaces,
J. Fluid Mech., 1004, A6 (2024) [23 pages];
(OA) DOI: 10.1017/jfm.2024.982.

3. Lohit Kayal, **Vatsal Sanjay**, Nikhil Yewale, Anil Kumar, and Ratul Dasgupta,
Focusing of concentric free-surface waves,
J. Fluid Mech., 1003, A14 (2025) [39 pages];
(OA) DOI: 10.1017/jfm.2024.1089.

4. Arivazhagan G. Balasubramanian, **Vatsal Sanjay**, Maziyar Jalaal, Ricardo Vinuesa, and Outi Tammisola,
Bursting bubble in an elasto-viscoplastic medium,
J. Fluid Mech., 958, A9 (2024) [36 pages];
(OA) DOI: 10.1017/jfm.2024.1073;
Cover of that volume of J. Fluid Mech.

5. **Vatsal Sanjay**, Pierre Chantelot, and Detlef Lohse,
When does an impacting drop stop bouncing?,
J. Fluid Mech., 958, A26 (2023) [20 pages];
(OA) DOI: 10.1017/jfm.2023.55.

6. **Vatsal Sanjay**, Srinath Lakshman, Pierre Chantelot, Jacco H. Snoeijer, and Detlef Lohse,
Drop impact on viscous liquid films,
J. Fluid Mech., 958, A25 (2023) [28 pages];
(OA) DOI: 10.1017/jfm.2023.13.

7. Bin Zhang, **Vatsal Sanjay**, Songlin Shi, Yinggang Zhao, Cunjing Lv, Xi-Qiao Feng, and Detlef Lohse,
Impact forces of water drops falling on superhydrophobic surfaces,
Phys. Rev. Lett. 129, 104501 (2022) [7 pages],
DOI: 10.1103/PhysRevLett.129.104501, OA: 10.48550/arXiv.2202.02437;
see also
   - As of March/April 2024, this *highly cited paper* received enough citations to place it in the top 1% of the academic field of Physics based on a highly cited threshold for the field and publication year. Source: Web of Science.
   - Editor's Suggestion of that issue.
   - Davide Castelvecchi, Research Highlight: "The physics of a bouncing droplet's impact", Nature, article: d41586-022-02302-w (29/8/2022)

8. **Vatsal Sanjay**, Uddalok Sen, Pallav Kant, and Detlef Lohse,
Taylor-Culick retractions and the influence of the surroundings,
J. Fluid Mech. 948, A14 (2022) [37 pages];
(OA) DOI: 10.1017/jfm.2022.671.

9. **Vatsal Sanjay**, Detlef Lohse, and Maziyar Jalaal,
Bursting bubble in a viscoplastic medium,
J. Fluid Mech. 922, A22 (2021) [24 pages];
(OA) DOI: 10.1017/jfm.2021.489.

10. Olinka Ramirez-Soto, **Vatsal Sanjay**, Detlef Lohse, Jonathan T. Pham, and Doris Vollmer,
Lifting a sessile oil drop with an impacting one,

Sci. Adv. 6, eaba4330 (2020) [11 pages];
(OA) DOI: 10.1126/sciadv.aba4330.

11. Abhinav Jain, **Vatsal Sanjay**, and Arup Kumar Das,
Consequences of inclined and dual jet impingement in stagnant liquid and stratified layers,
AlChE J. 65(1), 372-384 (2019) [12 pages],
DOI: 10.1002/aic.16373, OA: archived pdf.

12. Anurag Soni, **Vatsal Sanjay**, and Arup Kumar Das,
Formation of fluid structures due to jet-jet and jet-sheet interactions,
Chem. Eng. Sci. 191, 67-77 (2018) [11 pages],
DOI: 10.1016/j.ces.2018.06.055, OA: archived pdf.

13. **Vatsal Sanjay** and Arup Kumar Das,
Numerical assessment of hazard in compartmental fire having steady heat release rate from the source,
Build. Simul. 11(3), 613-624 (2018) [12 pages],
DOI: 10.1007/s12273-017-0411-y, OA: archived pdf..

14. **Vatsal Sanjay** and Arup Kumar Das,
On air entrainment in a water pool by impingement of a jet,
AIChE J. 63(11), 5169–5181 (2017) [23 pages],
DOI: 10.1002/aic.15828, OA: archived pdf.

15. **Vatsal Sanjay** and Arup Kumar Das,
Formation of liquid chain by collision of two laminar jets,
Phys. Fluids 29, 112101 (2017) [12 pages];
DOI: 10.1063/1.4998288, OA: archived pdf.