# CURRICULUM VITÆ

**Naomi Oppenheimer**

## Personal Information


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| Email | naomiop@gmail.com |
| Phone number | 0505731530 |
| Date of birth | October 5$^{\text{th}}$, 1984 |
| Place of birth | Israel |
| Home address | 4 Anderson street, Tel Aviv, Israel |


## High Education

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| *2004–2008* | Tel Aviv University. Undergraduate studies in chemistry and physics. 2008 – **B.Sc.** in chemistry (major) and physics (minor), *Cum Laude*. |
| *2008–2013* | Tel Aviv University. Ph.D. studies in chemical physics under the supervision of Prof. Haim Diamant. |

## Professional Experience

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| *2013–2015* | University of Chicago. James Franck Institute. Postdoctoral studies in physics in the group of Prof. Thomas Witten. |
| *2015–2016* | Princeton University. Mechanical and Aerospace Engineering department. Postdoctoral studies in the group of Prof. Howard Stone. |
| *2016–2019* | Flatiron Institute, division of the Simons Foundation. Biophysical modeling. Research Fellow in the group of Prof. Michael Shelley. |
| *2019–* | Tel Aviv University, Sackler School of Physics and Astronomy. Senior Lecturer. |

## Teaching Experience

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| *2003–2004* | Amutat Alon. Civil service. Teaching new immigrants math and Hebrew. As well as teaching assistant in an elementary school. |
| *2008–2010* | School of Chemistry, Tel Aviv University, course in thermodynamics. Teaching Assistant. |
| *2014* | Department of Physics, New-York University. Teaching assistant in a course on phase transitions and renormalization group for graduate students. |
| *2015* | Department of Physics, New-York University. Teaching assistant in the course "Dynamics" for undergraduate students. |

*2016* Department of Mechanical and Aerospace Engineering, Princeton University. Lecturer: "Mathematics in Engineering II" for undergraduate students.

*2019–* School of Physics and Astronomy, Tel Aviv University. Lecturer: Mechanics, Continuum Theory, Mathematical Methods for Physicists 2.

## Honors and Scholarships

*2008* Dean's list, Faculty of Exact Sciences, Tel Aviv University.

*2008* B.Sc. *Cum Laude*, School of Chemistry, Tel Aviv University.

*2009/2010* The Dean of Exact Sciences Scholarship for Excellence, Tel Aviv University.

*2010/2011* The Dean of Exact Sciences Scholarship for Excellence, Tel Aviv University.

*2012* The Israel Chemical Society Prize for Excellent Graduate Student.

*2013* Kadanoff-Rice postdoctoral Fellowship.

*2018* Best contributed talk. International Workshop on Biological Membranes.

## Seminars

*2009* Chemical Engineering Seminar, Ben-Gurion University. *Correlated diffusion of membrane proteins.*

*2012* Chemical Physics Seminar, Tel-Aviv University. *Dynamics in a membrane with immobile inclusions.*

*2012* Biological and Soft Matter Seminar, Tel-Aviv University. *Dynamics in a membrane with immobile inclusions.*

*2014* Statistical Physics Seminar, Weizmann institute. *Non-dissipative shapable sheets.*

*2014* PREM seminar, City College of New-York. *Non-dissipative shapable sheets.*

*2014* Biological and Soft Matter seminar, Tel-Aviv University. *Non-dissipative shapable sheets.*

*2014* Computations in Science seminar, James Franck institute. *Non-dissipative shapable sheets.*

*2015* Applied Math Seminar, Courant institute, New-York University. *A shapeable material without plastic deformation.*

*2016* Applied Mathematics Seminar, Courant, New York University. *Motion of a hot particle in viscous fluids.*

*2017* Biosoft seminar, Tel-Aviv University. *Motion of a hot particle in viscous fluids.*

*2018* Mathematical Biology seminar, New Jersey Institute of Technology, New Jersey. *Membrane Hydrodynamics - Passive Reactants and Active Proteins.*

*2019* Statistical Mechanics seminar, LPTMS, University Paris-Scakley. *Membrane Hydrodynamics and Their Role on Protein Interactions.*

*2019* Statistical Mechanics seminar, ESPCI, Paris. *Hurricane Dynamics in a Membrane.*

*2021* Statistical Mechanics seminar, Technion, Haifa. *Hurricane Dynamics in a Membrane.*

## Invited Talks

*2013* Imagery for Insight into Material Structure conference, University of Chicago. *Anomalously fast kinetics of lipid monolayers.*

*2014* Metamaterial day, University of Chicago. *Non-dissipative shapable sheets.*

*2016* Unusual configuration spaces, ICERM, Brown University. *Shape it as you wish: A minimal shapeable material.*

*2018* Computational Mechanics of Biomembranes at WCCM, New York. *Membrane rotors and membrane proteins.*

*2018* SIAM Conference on Life Sciences, Minneapolis. *Membrane rotors and membrane proteins.*

*2019* Sackler Biophysics Symposium, Tel Aviv University, Tel Aviv. *Hurricane Dynamics in a Membrane.*

*2020* Condensed Matter Symposium, Tel Aviv University, Tel Aviv. *Hurricane Dynamics in a Membrane.*

*2021* Israel Society for Theoretical and Applied Mechanics Symposium, Tel Aviv University, Tel Aviv. *Surfing its own wave - hydroelastic migration of a particle near a membrane.*

*2022* Israel Chemical Society, David Intercontinental Hotel, Tel Aviv. *Structural states and conservation laws in confined biological systems.*

## Contributed Talks

*2010* $56^{\text{th}}$ Meeting of the Israel Physical Society, Tel Aviv. *Dynamics in a membrane with immobile inclusions.*

*2010* International Workshop on Lipid Domains, Rehovot, Israel. *Correlated diffusion of membrane proteins.*

*2012* American Physical Society Annual Meeting, Boston, USA. *Dynamics in a membrane with immobile inclusions.*

*2012* $57^{\text{th}}$ Meeting of the Israel Physical Society, Haifa, Israel. *Anomalously fast kinetics of lipid monolayer buckling.*

*2016* American Physical Society Annual Meeting, Baltimore. *Motion of a hot particle in viscous fluids.*

*2017* Gordon research seminar, New Hampshire. *Motion of a hot particle in viscous fluids.*

*2017* American Physical Society Annual Meeting, New-Orleans. *Effect of hydrodynamic interactions on reaction rates in membranes.*

*2018* International Workshop on Biological Membranes, Helsinki. *Membrane Hydrodynamics and Their Role on Protein Interactions.*

*2018* TAU-ESPCI Winter School on Active Matter, Tel Aviv. *Membrane rotors and membrane proteins.*

## Publications

### Published papers

1. N. Oppenheimer and H. Diamant

   *Correlated diffusion of membrane proteins and their effect on membrane viscosity*

   **Biophysical Journal**, 96, 3041–3049 (2009).

   Impact Factor: 4.0 , Citations: 59, H index: 269, JCR: 19/71 Q2.

2. N. Oppenheimer and H. Diamant

   *Correlated dynamics of inclusions in a supported membrane*

   **Physical Review E**, 82, 041912 (2010).

   Impact Factor: 2.5 , Citations: 35, H index: 304, JCR: 12/34 of Q2, 8/55 of Q1.

3. N. Oppenheimer and H. Diamant

   *In plan dynamics of membranes with immobile inclusions*

   **Physical Review Letters**, 107, 258102 (2011).

   Impact Factor: 9.1 , Citations: 23, H index: 673, JCR: 7 of 86 of Q1.

4. N. Oppenheimer, H. Diamant and T. A. Witten

   *Anomalously fast kinetics of lipid monolayer buckling*

   **Physical Review E**, 88,022405 (2013).

   Impact Factor: 2.5 , Citations: 5, H index: 304, JCR: 8/55 of Q1.

5. N. Tramm, N. Oppenheimer, S. Nagy, E. Effrati, and D. Biron

   *Why do sleeping nematodes adopt a hockey-stick-like posture?*

   **PlosOne**, 9:e101162 (2014).

   Impact Factor: 3.2 , Citations: 15, H index: 241, JCR: 26 of 72 of Q2.

6. N. Oppenheimer, and T. Witten

   *Shapeable sheet without plastic deformation*

   **Physical Review E**, 92, 052401 (2015).

   Selected as editor's choice.

   Impact Factor: 2.5 , Citations: 9, H index: 304, JCR: 12/34 of Q2, 8/55 of Q1.

7. N. Oppenheimer S. Navardi and H. A. Stone
   *Motion of a hot particle in viscous fluids*
   **Physical Review Fluids**, 1, 014001 (2016).
   Impact Factor: 2.5 , Citations: 17, H index: 37, JCR: 11 of 34 of Q2.

8. N. Oppenheimer and H. A. Stone
   *Effect of hydrodynamic interactions on reaction rates in membranes.*
   **Biophysical Journal**,113, 440-447 (2017).
   Impact Factor: 4.0 , Citations: 2, H index: 269, JCR: 19/71 Q2.

9. B. Rallabandi*, N. Oppenheimer*, M. Y. Ben Zion, and H. A Stone
   *Surfing its own wave: hydroelasticity of a particle near a membrane.*
   **Nature Physics**, 14, 1211 (2018). ∗Equal contributors

10. N. Oppenheimer, D. B. Stein, and M. Shelley
    *Rotating membrane inclusions crystallize through hydrodynamic and steric interactions.*
    **Physics Review Letters**, 123, 148101 (2019).
    Impact Factor: 9.2 , Citations: 9, H index: 673, JCR: 7 of 86 of Q1.

11. R. Samanta, and N. Oppenheimer
    *Vortex flows and streamline topology in curved biological membranes.*
    **Physics of Fluids**, 37, 051906 (2021).
    Selected for Scilight. Impact Factor: 3.5, H index: 180, JCR: 6 of 34 of Q1.

12. N. Oppenheimer, D. B. Stein, M.Y. Ben Zion, M. J. Shelley
    *Hyperuniformity and phase enrichment in vortex and rotor assemblies.*
    **Nature Communications**, 13, 1–7 (2022). Impact factor: 14.9, H index: 365.

**Grants**

Israel Science Foundation, grant number 1752/20.

**Refereeing**

Physical Review Letters, Physical Review E., Physical Review Fluids, Soft Matter, European Journal of Physics E.

**Organizing seminars and conferences**

2014 *Computations in Science Seminar* at the James Franck Institute, University of Chicago.

2021 *Israel Physics Society* — virtual Conference.

2021 *Biophysics Day* — Tel Aviv University.

**Supervising**

(2020–2023) Yuval Shoam — Master Student

(2021) Dr. Rickmoy Samanta — Postdoctoral researcher

(2021– ) Roi Pe'er — Master Student.

(2021– ) Osher Arbib — Master Student.