

Curriculum Vitae

Yaron Ben-Ami

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CURRENT POSITION

UKRI Postdoctoral Fellow

Wolfson Centre for Mathematical Biology, Mathematical Institute, University of Oxford

Sep 2022 – present

Research Associate

Keble College

Sep 2022 – present

EDUCATION

- **PhD in Aerospace Engineering**, GPA 97.3

Oct 2016 – Dec 2020

Technion – Israel Institute of Technology, Haifa, Israel

Dissertation title: Effect of heat flux boundary conditions on heat and mass transfer processes in rarefied gases

- **MSc in Mechanical Engineering**, Summa cum Laude, GPA 97.1 (ranked 1/22)

Oct 2014 – Sep 2016 (MSc fast track – started within the last year of my BSc)

Ben-Gurion University of the Negev, Be'er-Sheva, Israel

Dissertation title: Erosion by solid particle impact

- **BSc in Mechanical Engineering**, Summa cum Laude, GPA 95.6 (ranked 1/145)

Oct 2011 – Aug 2015

Ben-Gurion University of the Negev, Be'er-Sheva, Israel

ACADEMIC EMPLOYMENT

- **Postdoctoral Research Associate** in mathematical modeling of tumour blood flow

Jan 2021 – Sep 2022

Wolfson Centre for Mathematical Biology, Mathematical Institute, University of Oxford

FELLOWSHIPS

- **UKRI Horizon Europe Guarantee MSCA Postdoctoral Fellow**

(Awarded the Marie Skłodowska-Curie Postdoctoral Fellowship – funded by UKRI)

Sep 2022 – Sep 2024

Monetary amount: £200K

- **The Adams Fellowships Program of the Israel Academy of Sciences and Humanities**

Oct 2018 – Dec 2020

(A highly prestigious fellowship granted to PhD students in the fields of Natural Sciences and Engineering in Israel)

Equivalent monetary amount: £50K

AWARDS AND HONORS

- Outstanding Instructor Award, Technion (2020)
- Faculty scholarship for scholastic achievements, Technion (three consecutive years 2018-2020)
- Award in the memory of Professor Meir Hanin for outstanding Ph.D. students, Technion (2019)
- Award in the memory of Doctor Arie Hillel for outstanding Ph.D. students, Technion (2018)
- Head of the Department of Mechanical Engineering award for scholastic achievements, Ben-Gurion University (four consecutive years 2013-2016)
- Dean of Engineering award for scholastic achievements, Ben-Gurion University (2016)

- Rector award for scholastic achievements, Ben-Gurion University (2015)
- Award in the memory of Irwin Glass for scholastic achievements in the field of Fluid Mechanics, Ben-Gurion University (2015)
- Award in the memory of Robert and Shirley Jacobs for scholastic achievements in the field of Mechanical Design, Ben-Gurion University (2015)
- The Micron Corporate award for scholastic achievements in engineering studies, Ben-Gurion University (2014)
- Award in the memory of Suzan Zellotovski for outstanding undergraduate candidates, Ben-Gurion University (2012)

PUBLICATIONS

Submitted

- **Ben-Ami, Y.**, Wood, B.D., Pitt-Francis, J. M., Maini, P. K., & Byrne, H. M. (2024). Homogenisation of nonlinear blood flow in periodic networks: the limit of small haematocrit heterogeneity (submitted to *SIAM J. Appl. Math.*).
- **Ben-Ami, Y.**, Pitt-Francis, J. M., Maini, P. K., & Byrne, H. M. (2023). Using a probabilistic approach to derive a two-phase model of flow-induced cell migration (submitted to *Biophys. J.*).

Journal Papers

- [1] Manela, A., & **Ben-Ami, Y.** (2023). Two-dimensional scattering of sound at noncontinuum conditions. *Phy. Rev. Fluids* 8, 063401.
- [2] Manela, A., & **Ben-Ami, Y.** (2022). Non-continuum effects on a squeezed gas film in a two-dimensional acoustic resonator. *J. Fluid. Mech* 946, A38.
- [3] **Ben-Ami, Y.**, Atkinson, G. W., Pitt-Francis, J. M., Maini, P. K., & Byrne, H. M. (2022). Structural features of microvascular networks trigger blood-flow oscillations. *Bul. Math. Biol* 84, 85.
- [4] Manela, A., & **Ben-Ami, Y.** (2021). Propagation of two-dimensional vibroacoustic disturbances in a rarefied gas. *Phy. Rev. Fluids* 6, 093401.
- [5] **Ben-Ami, Y.**, & Manela, A. (2021). Acoustic levitation of a rigid nano-sphere at non-continuum conditions. *J. Fluid Mech.* 916.
- [6] **Ben-Ami, Y.**, & Manela, A. (2020). The effect of a solid boundary on the propagation of thermodynamic disturbances in a rarefied gas. *Phys. Fluids* 32, 092002.
- [7] **Ben-Ami, Y.**, & Manela, A. (2020). Acoustic wave propagation at non-adiabatic conditions: the continuum limit of a thin acoustic layer. *Phys. Rev. Fluids* 5, 033401.
- [8] **Ben-Ami, Y.**, & Manela, A. (2019). The sound of a pulsating sphere in a rarefied gas: continuum breakdown at short length and time scales. *J. Fluid Mech.* 871, 668-693.
- [9] **Ben-Ami, Y.**, & Manela, A. (2019). Effect of heat-flux boundary conditions on the Rayleigh-Bénard instability in a rarefied gas. *Phys. Rev. Fluids* 4, 033402.
- [10] **Ben-Ami, Y.**, & Manela, A. (2018). Nonlinear thermal effects in unsteady shear flows of a rarefied gas. *Phys. Rev. E* 98, 033121.
- [11] **Ben-Ami, Y.**, & Manela, A. (2017). Acoustic field of a pulsating cylinder in a rarefied gas: thermoviscous and curvature effects. *Phys. Rev. Fluids* 2, 093401.
- [12] Uzi, A., **Ben-Ami, Y.**, & Levy, A. (2017). Erosion prediction of industrial conveying pipelines. *Powder Technol.* 309, 49-60.
- [13] **Ben-Ami, Y.**, & Levy, A. (2016). Absorbed shear energy during solid particle impact on ductile surface. *Wear* 368, 162-172.
- [14] **Ben-Ami, Y.**, Uzi, A., & Levy, A. (2016). Modelling the particles impingement angle to produce maximum erosion. *Powder Technol.* 301, 1032-1043.

INVITED TALKS

- “Using a probabilistic approach to derive a two-phase model of flow-induced cell migration”, School of Mathematics, University of Cardiff, 2023.
- “Blood flow oscillations are triggered by irregular vascular networks: a microscale mechanism for cycling hypoxia in tumours?” School of Computing and Mathematical Sciences, University of Leicester, 2023.
- “Blood flow oscillations are triggered by irregular vascular networks: a microscale mechanism for cycling hypoxia in tumours?” School of Mathematics, University of Birmingham, 2022.

CONTRIBUTED CONFERENCE PRESENTATIONS

- London Conference on Mathematical Biology, London, UK, 2023
- EMBO workshop on engineering in vascular biology, Barcelona, Spain, 2022
- The 72nd Annual Meeting of the APS Division of Fluid Dynamics, Seattle, USA, 2019
- The 26th International Conference on Sound and Vibration, Montreal, Canada, 2019
- The 59th Israel Annual Conference on Aerospace Sciences, Tel-Aviv, Israel, 2019
- The 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, USA, 2018
- The 31st Symposium on Rarefied Gas Dynamics, Glasgow, Scotland, 2018
- The 3rd European Conference on Non-Equilibrium Gas Flows, Strasburg, France, 2018
- The 34th Israeli Conference on Mechanical Engineering, Haifa, Israel, 2016
- The 8th International Conference for Conveying and Handling of Particulate Solids Solids, Tel-Aviv, Israel, 2015

TEACHING EXPERIENCE

- **Intercollegiate Tutor**, Mathematical Institute, University of Oxford.
Oct 2021 – Apr 2022
Courses: Viscous Flow; Topics in Fluid Mechanics; Stochastic Modeling of Biological Processes
- **Tutor**, Faculty of Aerospace Engineering, Technion – Israel Institute of Technology
March 2017 – Oct 2020
Courses: Incompressible Aerodynamics; Viscous Flow and Heat Transfer
- **Tutor**, Department of Mechanical Engineering, Ben-Gurion University of the Negev
Oct 2014 – Oct 2016
Courses: Dynamics; Thermodynamics; Equipment and Measurements Laboratory

SERVICE

- **Workshop organization**, Keble College, Oxford.
- **Organized and chaired mini-symposium** on microvascular blood flow, The 12th European Conference on Mathematical and Theoretical Biology, Heidelberg, 2022.
- **Referee role:** Journal of Mathematical Biology, Journal of Fluid Mechanics, Physical Review Applied, Wear.