Dr. rer. nat. Jayant Pande
Postdoctoral researcher
Bar-Ilan University
Department of Physics
Ramat-Gan 52900, Israel

Curriculum Vitae

PERSONAL DETAILS

Birth Date	11 October 1987
Nationality	Indian
Email	jayantshaq@gmail.com, pandeja@biu.ac.il
Website	https://j-pande.webnode.com

SKILLS

Technical Skills	Mathematica, MATLAB, Java, Bash, Adobe Illustrator, Inkscape, Latex, POV-Ray, GNU/Linux, Windows Simulation methods: Lattice-Boltzmann, Brownian Dynamics, Monte Carlo
Languages	Kumaoni, Hindi-Urdu, English – native French, German – fluent (C1 Level on the CEFR scale) Hebrew, Farsi – basic (A1 level on the CEFR scale)

EDUCATION

PhD Study Jan 2012 – Dec 2016	PULS group, Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany Supervisor: Prof. Dr. Ana-Sunčana Smith Thesis: *Analytical and numerical study of microswimming using the 'bead-spring model'* Final grade: *Summa cum laude* (With maximum distinction)
Undergraduate Study Jul 2005 – Jul 2010	Master of Science (Integrated) in Physics, Indian Institute of Technology, Kanpur, India Final grade: 7.1/10.0

PROFESSIONAL MEMBERSHIPS

2012 – present	*Deutsche Physikalische Gesellschaft* (German Physical Society)
2020 – present	Ecological Society of America

RESEARCH EXPERIENCE

Nov 2018 – Present	Postdoctoral researcher, at Department of Physics, Nadav Shnerb group, Bar-Ilan University, Israel
Jul 2017 – Sep 2018	Postdoctoral researcher, at Department of Chemical Engineering, Ubaldo Córdova-Figueroa group, University of Puerto Rico-Mayagüez, USA
Mar 2017 – May 2017	Postdoctoral researcher, at Cluster of Excellence: Engineering of Advanced Materials, PULS group (Ana-Sunčana Smith), Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany

TEACHING EXPERIENCE

2010 – 2015 Teaching Assistant for *Electrodynamics* (Winter 2010-11 and Winter 2011-12), *Quantum Mechanics* (Summer 2012) and *Classical Field Theory* (Winter 2014-15), and Mentor (for three students) in *Physics Seminar: Computational Methods in Soft Matter and Biophysics* (Summer 2015) in Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany

LIST OF PUBLICATIONS

Research articles published

[10] *Taming the diffusion approximation through a controlling-factor WKB method*, J. Pande and N.M. Shnerb, *Physical Review E* **102**, 062410 (2020)

[9] *Invasion growth rate and its relevance to persistence: a response to Technical Comment by Ellner et al.*, J. Pande, T. Fung, R. Chisholm and N.M. Shnerb, *Ecology Letters* **23**, 1725 (2020)

[8] *Mean growth rate when rare is not a reliable metric for persistence of species*, J. Pande, T. Fung, R. Chisholm and N. Shnerb, *Ecology Letters* **23**, 274 (2020)

[7] *Optimal motion of triangular magnetocapillary swimmers*, A. Sukhov, S. Ziegler, Q. Xie, O. Trosman, J. Pande, G. Grosjean, M. Hubert, N. Vandewalle, A.-S. Smith and J. Harting, *Journal of Chemical Physics* **151**, 124707 (2019)

[6] *Asymptotic expansions of the hypergeometric function with two large parameters*, M. Cvitković, A.-S. Smith and J. Pande, *Journal of Physics A: Mathematical and Theoretical* **50**, 265206 (2017)

[5] *Effect of body deformability on microswimming*, J. Pande, L. Merchant, T. Krüger, J. Harting and A.-S. Smith, *Soft Matter* **13**, 3984 (2017)

[4] *Setting the pace of microswimmers: when increasing viscosity speeds up self-propulsion*, J. Pande, L. Merchant, T. Krüger, J. Harting and A.-S. Smith, *New Journal of Physics* **19**, 053024 (2017)

[3] *Lattice Boltzmann simulations of the bead-spring microswimmer with a responsive stroke—from an individual to swarms*, K. Pickl*, J. Pande*, H. Köstler, U. Rüde and A.-S. Smith, *Journal of Physics: Condensed Matter* **29**, 124001 (2017)

[2] *Forces and shapes as determinants of micro-swimming: effect on synchronization and the utilization of drag* (**COVER ARTICLE**), J. Pande and A.-S. Smith, *Soft Matter* **11**, 2364 (2015)

[1] *All good things come in threes—three beads learn to swim with lattice Boltzmann and a rigid body solver*, K. Pickl, J. Götz, K. Iglberger, J. Pande, K. Mecke, A.-S. Smith and U. Rüde, *Journal of Computational Science* **3**, 374 (2012)

Doctoral dissertation

[0] *Analytical and numerical study of microswimming using the 'bead-spring model'*, J. Pande, Friedrich-Alexander University of Erlangen-Nuremberg, Germany (2016). Available here.

Research articles under review

[I] *Stochasticity-induced stabilization weakens in diverse communities*, J. Pande and N.M. Shnerb

[II] *Quantifying invasibility*, J. Pande, Y. Tsubery and N.M. Shnerb

Pedagogical article accepted for publication but not published yet

[i] *Proof of a Bessel function integral*, J. Pande (provisionally accepted for publication in *Resonance: Journal of Science Education*)

SUPERVISING EXPERIENCE (co-supervision, along with PhD advisor or group leader)

Aug 2020 – Oct 2020	Summer project: Yehonatan Tsubery, Bar-Ilan University, Ramat Gan, Israel Project title: *Monte Carlo simulations of two-species population models under environmental fluctuations*
Jul 2017 – Sep 2017	Masters thesis: Daniela Trespalacios-Alies, University of Puerto Rico-Mayagüez, Puerto Rico, USA Project title: *Brownian Dynamics simulations of active colloidal particles in nematic liquid crystals*
Jun 2015 – Sep 2017	Masters thesis: Thomas Scheel, Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany Project title: *Effect of confinement on bead-spring microswimmers*
Oct 2015 – Nov 2016	Masters thesis: Oleg Trosman, Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany Project title: *Microswimming with inertia*
Jun 2014 – Aug 2014	Summer project, DAAD RISE Programme: Laura Merchant, University of St. Andrews, Scotland Project title: *Solving microswimmer models*
Jan 2013 – Apr 2013	Bachelors thesis: Thomas Kiendl and Matthias Späth (joint thesis), Friedrich-Alexander-University of Erlangen-Nuremberg, Erlangen, Germany Project title: *Simulations of microswimmer clusters*

INTERNATIONAL RESEARCH VISITS

Apr 2014 – May 2014	Dr. Jens Harting , Mesoscopic Transport Phenomena group, Eindhoven University of Technology, The Netherlands Project: *Simulation of deformable bead-spring microswimmer models*
May 2009 – Jul 2009	Dr. Vincent Boudry, Laboratoire Leprince-Ringuet, École Polytechnique, Palaiseau Cedex, France Project: *Study of events inside a semi-digital hadronic calorimeter*

GRANTS, AWARDS AND HONOURS

Dec 2016	*Summa cum laude* distinction – Doctoral dissertation
May 2015	CISM grant – COST Summer School "Interaction of microscopic structures and organisms with fluid flows", Udine, Italy
Sep 2012	EMBO travel grant – PhysCell2012, Hyères, France
2005 – 2010	Merit-cum-Means scholarship, Indian Institute of Technology, Kanpur, India
2009	SPIC MACAY scholarship, India
2003 – 2005	National Talent Search Examination scholarship, India

RESEARCH GRANT AS PRINCIPAL INVESTIGATOR

Jun 2014 – Aug 2014	Grant name: Research Internships in Science and Engineering (RISE) Sponsor: DAAD (German Academic Exchange Service) Amount: 2200 Euro Purpose: Supervision of Laura Merchant from the University of St. Andrews, Scotland, on summer research project. Resulted in 2 publications.

REVIEWING RESPONSIBILITIES

2018 – present	*Progress in Biophysics and Molecular Biology* (Elsevier)

RESEARCH DISSEMINATION

Talks

Aug 2020	Ecological Society of America Annual Meeting, Salt Lake City, USA (held online)
Jul 2020	Durham Biophysical Sciences Institute ECR Online Symposium, Durham, UK (held online)
Mar 2016	German Physical Society Spring Meeting, Regensburg, Germany
Jul 2015	Discrete Simulation of Fluid Dynamics, Edinburgh, Scotland
Mar 2015	German Physical Society Spring Meeting, Berlin, Germany
Jul 2014	Dynacaps 2014: Dynamics of Capsules, Vesicles and Cells in Flow, Compiègne, France
May 2014	Soft Matter Meeting, Amsterdam, The Netherlands
Mar 2014 – Apr 2014	German Physical Society Spring Meeting, Dresden, Germany
Mar 2013	EAM Winter School, Kirchberg, Austria
Mar 2013	German Physical Society Spring Meeting, Regensburg, Germany

Posters

Jul 2019	Mathematical Models in Ecology and Evolution (MMEE), Lyon, France
Oct 2016	Microswimmers – From Single Particle Motion to Collective Behaviour, Bonn, Germany
Aug 2016	Workshop Innovative Surfaces and Materials, Primošten, Croatia
Jul 2015	Physics of Emergent Behaviour II: From Molecules to Planets, London, England
May 2015	COST Training Summer School on “Interaction of microscopic structures and organisms with fluid flows”, Udine, Italy
Apr 2015	Microswimmers – From Bulk to Interfaces, Bordeaux, France
Feb 2015	Symposium Physics and Medicine, Erlangen, Germany
Dec 2013	Physics and Biology of Directed Movements of Cells and Organisms, Bad Honnef, Germany
Sep 2013	International Soft Matter Conference, Rome, Italy
Sep 2012	Forces and Flow in Biological Systems, Bad Honnef, Germany
Sep 2012	Physics of Cells – From Soft to Living Matter, Hyères, France
Jun 2012	EAM Summer School, Bad Staffelstein, Germany
Mar 2012	German Physical Society Spring Meeting, Regensburg, Germany