

# Jayant Pande - *Curriculum Vitæ*

Hauptstrasse 112, 91054 Erlangen, Germany +49 (0) 160 99656244 jayant.pande@fau.de

## PERSONAL DETAILS

**Birth Date** 11 October 1987  
**Nationality** Indian  
**Current Employment** Postdoctoral researcher, PULS Group, Cluster of Excellence: Engineering of Advanced Materials (EAM), Friedrich-Alexander-University (FAU) Erlangen-Nuremberg, Nägelsbachstrasse 49b, 91052 Erlangen, Germany  
Phone: +49 (0) 9131 85 20854 Fax: +49 (0) 9131 85 28907

## SKILLS

**Technical Skills** Mathematica, Java, Bash, LB3D, Adobe Illustrator, Inkscape, Latex, ParaView, Windows, GNU/Linux  
**Languages** English, Kumaoni and Hindi - native  
French and German - fluent (C1 level on the CEFR scale)  
Croatian - basic (A2 level on the CEFR scale)

## EDUCATION

**PhD Study** **PULS GROUP, FAU ERLANGEN-NUREMBERG, GERMANY**  
*Summa cum laude*  
(With distinction) Supervisor: Prof. Dr. Ana-Sunčana Smith  
Jan 2012 - Dec 2016 Thesis: *Analytical and numerical study of microswimming using the 'bead-spring model'*

**Undergraduate Study** **MASTER OF SCIENCE (INTEGRATED) IN PHYSICS, INDIAN INSTITUTE OF TECHNOLOGY, KANPUR, INDIA**  
Jul 2005 - Jul 2010 Supervisor: Dr. Debabrata Goswami  
Thesis: *Study of the thermal lens effect in methanol-ethanol mixtures*

## MEMBERSHIP

2012 - present German Physical Society

## WORK EXPERIENCE

**Research Assistantship** **CLUSTER OF EXCELLENCE: ENGINEERING OF ADVANCED MATERIALS, ERLANGEN, GERMANY**  
Oct 2010 - Jan 2012

## TEACHING DUTIES

2010 - 2015 **Teaching Assistant** for the courses **Electrodynamics** (Winter 2010-11 and Winter 2011-12) and **Quantum Mechanics** (Summer 2012 and Winter 2014-15), in the Department of Physics, FAU Erlangen-Nuremberg. Mentoring of three students in the course **Physics Seminar: Computational Methods in Soft Matter and Biophysics** (Summer 2015) in the same department.

## STUDENT CO-SUPERVISION

- Jun 2016 – present    **Masters thesis:** Thomas Scheel, FAU Erlangen-Nuremberg  
Project title: *Effect of confinement on the swimming of bead-spring microswimmers*
- Oct 2015 – Jan 2017    **Masters thesis:** Oleg Trosman, FAU Erlangen-Nuremberg  
Project title: *An analytical perturbative model for bead-spring microswimmers with inertia*
- Jun 2014 – Aug 2014    **DAAD RISE Programme:** Laura Merchant, University of St. Andrews, Scotland  
Project title: *Swimming at the micro-scale*
- Jan 2013 – Apr 2013    **Bachelors thesis:** Thomas Kiendl and Matthias Späth (joint thesis), FAU Erlangen-Nuremberg  
Project title: *Simulations of microswimmer clusters*

## RESEARCH DISSEMINATION

### Talks

- 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

- 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

## INTERNATIONAL RESEARCH STAYS

- Apr 2014 – May 2014 **MESOSCOPIC TRANSPORT PHENOMENA GROUP, EINDHOVEN UNIVERSITY OF TECHNOLOGY, THE NETHERLANDS**  
Collaborator: Prof. Dr. Jens Harting  
Project: *Study and simulation of deformable bead-spring microswimmer models*
- May 2009 – Jul 2009 **LABORATOIRE LEPRINCE-RINGUET, ECOLE POLYTECHNIQUE, PALAISEAU CEDEX, FRANCE**  
Supervisor: Dr. Vincent Boudry  
Project: *Study of the events inside a semi-digital hadronic calorimeter*

## GRANTS AND AWARDS

- Dec 2016 *Summa cum laude* distinction – PhD dissertation
- May 2015 CISM grant for COST Training Summer School on “Interaction of microscopic structures and organisms with fluid flows”, Udine, Italy
- Jun 2014 – Aug 2014 DAAD RISE grant for supervision of Laura Merchant from the University of St. Andrews, Scotland, on a research project
- Sep 2012 EMBO travel grant for 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

## LIST OF PUBLICATIONS

- P8)** *Microswimming with inertia*, **J. Pande**, O. Trosman, K. Pickl, U. Røde and A.-S. Smith, *submitted* (preprint available at [arXiv:1603.04633](https://arxiv.org/abs/1603.04633) [cond-mat.soft])
- P7)** *Effect of body deformability on microswimming*, **J. Pande**, L. Merchant, T. Krüger, J. Harting and A.-S. Smith, *submitted* (preprint available at [arXiv:1611.01795](https://arxiv.org/abs/1611.01795) [physics.bio-ph])
- P6)** *Setting the pace of microswimmers: when increasing viscosity speeds up self-propulsion*, **J. Pande**, L. Merchant, T. Krüger, J. Harting and A.-S. Smith, *submitted* (preprint available at [arXiv:1411.5723](https://arxiv.org/abs/1411.5723) [cond-mat.soft])
- P5)** *General asymptotic expansions of the hypergeometric function with two large parameters*, M. Cvitković, A.-S. Smith and **J. Pande**, *submitted* (preprint available at [arXiv:1602.05146](https://arxiv.org/abs/1602.05146) [math-ph])
- P4)** *Lattice Boltzmann simulations of the bead-spring microswimmer with a responsive stroke—from an individual to swarms*, K. Pickl\*, **J. Pande**\*, H. Köstler, U. Røde and A.-S. Smith, *J. Phys.: Condens. Matter* (2017, available at <https://doi.org/10.1088/1361-648X/aa5a40>)
- P3)** PhD thesis—*Analytical and numerical study of microswimming using the ‘bead-spring model’*, **J. Pande** (2016, available at <https://opus4.kobv.de/opus4-fau/frontdoor/index/index/docId/7955>)
- P2)** *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)
- P1)** *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. Røde, *J. Comput. Sci.* **3**, 374 (2012)

