Desislava V. Todorova

Contact Information

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Employment

11/2015 - Present *University of Pennsylvania, Department of Physics and Astronomy*
209 South 33rd Street, Philadelphia, PA 19104-6396, USA
Postdoctoral Researcher
Supervisor: Prof. Eleni Katifori;
Projects: Wrinkling and folding of elastic shells; Cell wall sculpting and microflows in plants and insects.

11/2013 - 11/2015 *Max Planck Institute for Dynamics and Self Organization*
Göttingen, Germany
Postdoctoral Researcher at the Independent Research Group for *Physics of Biological Organization*;
Supervisor: Prof. Eleni Katifori;
Project: Cell wall sculpting and microflows in plants and insects.

Education

04/2009 - 06/2013 *Loughborough University, UK* *Department of Mathematical Sciences*

Marie Curie Fellow (Early Stage Researcher) within the Initial Training Network "Multiscale Complex Fluid Flows and Interfacial Phenomena" (MULTIFLOW) – *06/2009-06/2012* ;
Ph.D. Student, Member of the Mathematical Modelling Research Group;
Supervisor: Prof. Uwe Thiele;
Thesis: Modelling of dynamical effects related to the wettability and capillarity of simple and complex liquids;

10/2007 - 03/2009 *Sofia University* *Department of Solid State Physics, Faculty of Physics*

M.Sc. Solid State Physics, Distinction, 1st class;
Thesis: "Computer modelling of the dielectric properties and infra-red transmission spectra of Si/SiO_x nanocomposites";
Supervisor: Prof. Vesselin Donchev;
Awarded Sofia University Student Scholarship for Excellence (2008 and 2009).

10/2003 - 06/2007 *Sofia University* *Faculty of Physics*

B.Sc. Physics (Hons), Distinction, 1st class;
Thesis: "Computer modelling of the dielectric properties of nanocomposites"
Supervisor: Prof. Vesselin Donchev;
Awarded Sofia University Student Scholarship for Excellence (2004, 2005, 2006 and 2007).

Publications

1. "Curvature, confinement and wrinkling" O. E. Albarran A., D. Todorova, L. Goehring, E. Katifori, *(in preparation)*;

2. "The smectic order of wrinkles" H. Aharoni, D. Todorova, E. Katifori, and R. D. Kamien *(in preparation)*;

3. "Water transport in plants: a trade-off between efficiency and safety" D. Todorova and E. Katifori, *(in preparation)*;

4. "Gradient dynamics description for films of mixtures and suspensions: Dewetting triggered by coupled film height and concentration fluctuations" U. Thiele, D. Todorova and H. Lopez, *Phys Rev Lett* **111** , 117801 (2013), DOI: 10.1103/PhysRevLett.111.117801;

5. "Parameter passing between Molecular Dynamics and continuum models for droplets on solid substrates: The static case" N. Tretyakov, M. Müller, D. Todorova and U. Thiele, *J Chem Phys* **138**, 064905 (2013), DOI: 10.1063/1.4790581;

6. "Steady evaporating droplets fed by an influx – the isothermal limit" D. Todorova, U. Thiele and L. M. Pismen, *J Eng Math* **73**, 17-30 (2012), DOI: 10.1007/s10665-011-9485-1;

7. "Characterization of Si-SiO_x nanocomposite layers by comparative analysis of computer simulated and experimental infra-red transmission spectra" V. Donchev, D. Nesheva, D. Todorova, K. Germanova, E. Valcheva, *Thin Solid Films* **520** (6), 2085-2091(2011), DOI: 10.1016/j.tsf.2011.08.009;

8. "Optical properties of AlN/SiO_2 nanocomposite layers" D. Todorova, E. Valcheva, V. Donchev, D. Manova, S. Mändl, *J Optoelectron Adv M*, **11**, 1296-1298 (2009);

9. "Highly localized ion focusing effects in PBIID", F. Haberkorn, D. Todorova, D. Manova, S. Mändl, *Phys Status Solidi (C)*, **5**, 918-922 (2008), DOI: 10.1002/pssc.200778336;

Skills & Research Techniques

Languages Bulgarian (Native), English (Fluent), German (B1.1), Russian (Read only)

Technical Skills ABAQUS – a software suite for finite element analysis and computer-aided. engineering;

OpenFOAM – an open-source software package for Computational Fluid Dynamics problems;

Helyx-OS – an open-source graphical user interface for OpenFOAM;

ParaView – an open-source, multi-platform data analysis and visualization application;

AUTO07p – an open-source software package for numerical continuation and bifurcation problems in Ordinary Differential Equations;

Wolfram Mathematica;

UNIX, LaTeX, Windows, Microsoft Office;

Programming Experience: Fortran and C++