

## PERSONAL

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## ACADEMIC DEGREES

2007 Ph.D. *direct program*  
Department of Physical Chemistry  
Hebrew university of Jerusalem, Israel

1999 B.Sc. *cum laude*  
Chemistry and Computer Science  
Hebrew university of Jerusalem, Israel

## ACADEMIC APPOINTMENTS

03/2012- present: Assistant Professor, Faculty of Mechanical Engineering, Tehnion.

10/2010-3/2012: Visiting Scientist, Weizmann institute, working with Prof. Michael Fainzilber on the mechanism of stretch-induced axonal growth.

01/2007-10/2010: Postdoctoral fellow, Department of Chemistry and Chemical Engineering, California institute of Technology (Caltech), CA, USA. Working with Prof. David Tirrell on cell mechanosensing and design of protein engineered biomaterials.

1999-2006: Teaching Assistant, Department of Chemistry, Hebrew university of Jerusalem, Israel.

## RESEARCH INTERESTS

- Cell mechanics, cell mechano-sensing and mechanical communication
- Cell-biomaterial interaction
- Development of mechano-sensitive protein-engineered biomaterials
- Nerve regeneration by mechanical cues

## TEACHING EXPERIENCE

### Design of new courses:

Cell mechanosensing (graduate level)

Thermo-mechanics of materials (graduate level).

### Lecturer in the courses:

Cell mechanosensing (graduate level)

Shelly Tzlil  
Curriculum vitae (continued)

034028 Solid Mechanics 1 (undergraduate level)

035091 Thermodynamics 2 (undergraduate level)

**Teaching assistant in the courses** (Chemistry department, Hebrew university):

Topics on statistical mechanics (graduate level)

Physical chemistry A - kinetics (undergraduate level)

Physical chemistry B - Thermodynamics (undergraduate level)

## **TECHNION ACTIVITIES**

2014: Member, Technion delegation to the 28<sup>th</sup> symposium of the Umbrella cooperation of Technion-Israel Institute of Technology, Forschungszentrum Julich and RWTH Aachen university in Aachen, Germany.

## **PUBLIC PROFESSIONAL ACTIVITIES**

**Reviewer for Journals:**

Biophysical Journal, Journal of Chemical Physics, Journal of Physical Chemistry.

## **HONORS AND AWARDS**

2013-2015: Young Investigators Fund for Innovative, Collaborative, Multidisciplinary Biomedical Engineering Research Fellow

2007-2010: Human Frontier Science Program (HFSP) postdoctoral Fellow

2005-2006: Rector Fellowship

2004: Canadian scholarship for Excellency

2003: Wolf prize for PhD students

2001-2003: Faculty scholarship for Excellency

2001: Rector's prize for MSc students

1999: BSc Cum Laude

1997: Rector prize

1996: Elwing prize for Excellency in analytical Chemistry

## **PUBLICATIONS**

**Theses**

Shelly Tzlil, "Interactions of flexible macromolecules with surfaces and their role in viral assembly, Ph.D. dissertation, Hebrew university of Jerusalem, 2007. Supervisor: Prof. Avinoam Ben-Shaul

**Refereed papers in professional journals**

1. James Kindt, Shelly Tzlil, Avinoam Ben-Shaul and William M. Gelbart , *DNA Packaging and Ejection Forces in Bacteriophage*, *PNAS*. **98**, 13671-13674 (2001). (*impact factor: 10.58; number of citations: 197*)
2. Shelly Tzlil, James Kindt, William M. Gelbart and Avinoam Ben-Shaul, *Forces and Pressures in DNA Packaging and Release from Viral Capsids*, *Biophys. J.* **84**, 1616-1627 (2003). (*impact factor: 4.1; number of citations: 133*)
3. Shelly Tzlil, Markus Deserno, William M. Gelbart and Avinoam Ben-Shaul, *A Statistical-Thermodynamic Model Of Viral Budding*, *Biophys. J.* **86**, 2037-2048 (2004). (*impact factor: 4.1; number of citations: 35*)
4. Shelly Tzlil and Avinoam Ben-Shaul, *Flexible Charged Macromolecules on Mixed Fluid Lipid Membranes: Theory and Monte-Carlo Simulations*, *Biophys. J.* **89**, 2972-2987 (2005). (*impact factor: 4.1; number of citations: 31*)
5. Shelly Tzlil, Diana Murray and Avinoam Ben-Shaul, *The “Electrostatic-Switch” mechanism: Monte Carlo study of MARCKS-membrane interaction*, *Biophys. J.* **95**, 1745-1757 (2008). (*impact factor: 4.1; number of citations: 17*)
6. Eileen Fong\*, Shelly Tzlil\* and David A. Tirrell, *Boundary crossing in epithelial wound healing*, *PNAS*, **107**, 19302-19307 (2010). (*impact factor: 10.58; number of citations:14*) \* These authors contributed equally to this work
7. Shelly Tzlil and David A. Tirrell, *Strain propagation within artificial extracellular matrix proteins can accelerate cell spreading and polarization*, *Soft Matter*, **9**, 5602-5608 (2013). (*impact factor: 4.35*)

**Review papers:**

8. Shelly Tzlil and Rejji Kuruvilla, *Signaling in space and time: EMBO conference series on systems dynamics of intracellular communication*, *EMBO reports*, **12**, 877-879 (2011)