

# Sefi (Josef) Givli

---

## PERSONAL

DOB: November 4, 1972, Beer Sheva, Israel.  
Marital status: Married + three children.  
Address: Faculty of Mechanical Engineering  
Technion – Israel Institute of Technology  
Haifa, 32000. Israel.  
Tel.: (+972) 4-829 3014.  
Fax: (+972) 4-829 5711.  
Email: [givli@technion.ac.il](mailto:givli@technion.ac.il)  
Web site: [http://meeng.technion.ac.il/Sefi\\_Givli.htm](http://meeng.technion.ac.il/Sefi_Givli.htm)

## ACADEMIC DEGREES

2005 Ph.D., *direct program*  
Technion – Israel Institute of Technology, Israel, Haifa  
Thesis: Mechanical behavior of heterogeneous structures.

1994 B.Sc., *summa cum laude*  
Faculty of Mechanical Engineering  
Technion – Israel Institute of Technology, Israel, Haifa

## ACADEMIC APPOINTMENTS

2017 – today: Associate Professor, Faculty of Mechanical Engineering, Technion.

2008 – 2017: Assistant Professor<sup>1,2</sup>, Faculty of Mechanical Engineering, Technion.

2006 – 2008: Postdoctoral scholar, Division of Engineering and Applied Science, California institute of Technology (Caltech). Theoretical models for skeletal muscles and biological membranes.

2005 – 2006: Post-doctoral scholar and Adjunct Lecturer. Faculty of Mechanical Engineering, Technion.

## PROFESSIONAL EXPERIENCE

1997-2000: Israeli Air Force – System Engineer, Headquarters. F100 jet engine (F-15 and F-16 aircrafts) officer. Aspects of aerodynamics, thermodynamics, control, materials science, fatigue, non-destructive inspections, manufacturing and assembly together with budget and logistics planning.

1994-1997: Israeli Air Force - Field (in base) Engineer of F100 jet engine (F-15 and F-16 aircrafts). Manager of jet engines maintenance facility which employs 50 technicians.

---

<sup>1</sup> Title of that rank was changed from “Senior Lecturer” to “Assistant Professor” in 2012.

<sup>2</sup> Tenured from 2014.

## **RESEARCH INTERESTS**

- Multi-stable mechanisms: collective behavior, energy landscape, solitary waves, application to structural proteins and to twin boundary motion in shape memory alloys.
- Mechanics of structures undergoing remodeling and phase transitions.
- Postbuckling behavior of laterally constrained elastica and curved beams.
- Mechanics of structural proteins: transition from compactly folded to unfolded configurations of Ig domains, chemo-mechanical coupling, energy dissipation and barriers.
- Muscle mechanics: sarcomere non-uniformities, eccentric contraction, muscle damage, multi-scale modeling.
- Biological membranes: multi-component membranes, rafts and functional domains, stability, interaction with cytoskeleton, cell motility.
- Heterogeneous structures: reliability, fracture, morphological characterization.

## **TEACHING EXPERIENCE**

### **Design of new courses:**

036071 Biomechanics of cells and molecules (graduate level).

### **Lecturer in the courses:**

036071 Biomechanics of cells and molecules (graduate level).

034029 Solids mechanics 2 (undergraduate level).

034028 Solids mechanics 1 (undergraduate level).

### **Teaching assistant in the courses:**

035029 Applied thermoelasticity

034029 Solids mechanics 2.

034028 Solids mechanics 1.

034506 Manufacturing processes for industrial engineers.

034005 Manufacturing processes for mechanical engineers.

035027 Experimental methods. Laboratory instructor, and course administrator - incharge of 15 teaching assistants and the course administration.

### **Additional teaching experience in the academia**

- Mentor in SURF (summer 2007, summer 2008) - summer undergraduate research program at Caltech.
- Tutor in SciTech 2002 – an international science and technology live-in research camp for gifted high school students, organized by the Center for Pre-University Education, and hosted at the Technion - Israel Institute of Technology.

## **TECHNION ACTIVITIES:**

2010 Member, Technion delegation to annual meeting of the Umbrella Program with RWTH-Aachen University and the Julich Computer Center in Aachen, Germany.

### **Departmental activities:**

2008 Technion open day, representative of the Faculty of Mechanical Engineering.

2008/9 Establishment of the biomechanics major in the Faculty of Mechanical Engineering, Technion.

2009-2010 Head and academic in charge - establishment of a new website for the Faculty of Mechanical Engineering.

2010, 2012 Faculty research day, referee.

2010-2013 Head and in-charge of academic content, website of the Faculty of Mechanical Engineering, Technion.

2013 Computers and communication committee, the Dan Kahn building.

2009-2014 Head, Biomechanics major in Mechanical Engineering.

2009-2014 Undergraduate committee, member.

2016 Editor, review report of the ME department at Technion for the international review committee.

2017 Undergraduate committee, member.

2017- Graduate committee, member

2017 Editor, report of the ME department at Technion for the Israeli Council for Higher Education (CHE).

## **PUBLIC PROFESSIONAL ACTIVITIES:**

### **Reviewer for Journals:**

Applied Physics Letters, Continuum Mechanics and Thermodynamics, Fluid Dynamics Research, International Journal of Mechanical Sciences, Journal of Microelectromechanical systems (J-MEMS), International Journal of Solids and Structures (IJSS), International Journal of Structural Stability and Dynamics, Journal of Applied Mechanics, Journal of Inflammation Research, Journal of the Mechanics of Physics and Solids (JMPS), Mechanics of Materials, Soft Matter, Structural Safety.

### **Reviewer for Research Grant Programs:**

Israel Science Foundation (ISF)  
U.S.-Israel Binational Science Foundation (BSF).

### **Review Committee Member for Research Grant Programs:**

Israel Science Foundation (ISF) – Biomedicine and bioengineering.

## MEMBERSHIP IN PROFESSIONAL SOCIETIES

- SES – Society of Engineering Science
- EUROMECH – European Mechanics Society.
- IUTAM – International Union of theoretical and Applied Mechanics.
- SIAM – Society for Industrial and Applied Mathematics.
- IACMM - Israel Association for Computational Methods in Mechanics.
- ISTAM - The Israel Society for Theoretical and Applied Mechanics.

## HONORS AND AWARDS:

- |              |  |
|--------------|--|
| 1991-1994    | Certificate of Excellence for B.Sc. achievements, President of Technion (1991, 1993, 1994), Dean of Mechanical Engineering (1992). |
| 2001         | Certificate of Excellence, Technion graduate school.   |
| 2002         | Wolf Foundation fellowship, for graduate studies achievements.   |
| 2003         | Gutwirth prize.  |
| 2004         | Applied Materials Ltd, scholarship.  |
| 2005         | Lady Davis Postdoctoral fellowship.  |
| 2000-2005    | Elected as Technion excellent T.A. (top 4% of Technion) - <b>6 times</b> .   |
| 2006         | Pnueli prize for PhD thesis.   |
| 2006         | Lester Deutsch Postdoctoral fellowship.  |
| 2011         | <b>Yanai Prize</b> for Excellence in Academic Education.   |
| 2006,2009-17 | Technion outstanding lecturer (top 4%) – <b>16 times, 8 consecutive years</b> .  |

## GRADUATE STUDENTS:

(Primary supervisor and only supervisor, unless stated otherwise)

### Completed theses (9)

#### MSc (7):

1. Ariel Ben-Atia, 2009, Morphology geometry and loading interaction in stochastically heterogeneous structures, co-supervisor with Eli Altus. *Brakim program\**. Current position: Air-force officer.
2. Idan Israel, 2011, Effect of boundary configuration on the local deflections and stresses in elastic structures, co-supervisor with Eli Altus. *Brakim program\**. Current position: IDF officer.
3. Gal Salinas, 2012, Optimal design of bi-stable mechanisms [J21, C23]. *Brakim program\**. Current position: IDF officer.
4. Yair Adler, 2013, Lamellipodia dynamics in crawling cells [J16, I2, P6, C25, C29]. *Re'amim program†*. Current position: Rafael Ltd.
5. Elad Tenenbaum, 2014, The mechanical behavior of statically indeterminate beams made from a lipid-bilayer. *BSC Summa cum Laude, HP Indigo Prize for academic achievements (2013), Barazani Award for MSc achievements (2015), Re'amim program†, 100 club‡ (2009-10)*.
6. Shmuel Katz, 2015, Post-buckling of laterally constrained elastica [J22]. *BSc Summa cum Laude, MSc Summa cum Laude*.
7. Shimrit Cohen (Katz), 2015, Phase separation and shape stability of two-phase biological membranes [J28].

#### PhD (2):

1. Itamar Benichou, 2014, Theoretical and experimental study of multi-stable structures [J10, J13, J15, J20, C18, C20, C24, J26]. **Direct PhD track**, *Gutwirth prize (2011), Fine Scholarship (2012), Russel Berrie Nano Institute Scholarship (2012, 2013), Barazani award for PhD achievements (2015)*.
2. Lior Atia, 2015, Equilibrium and non-equilibrium configurations of heterogeneous biological membranes [J12, J18, C21, C26, C32]. **Direct PhD track**, *Sherman fellowship (2011), HP Indigo award for PhD achievements (2015)*. Currently postdoc with Prof. Jeff Fredberg at Harvard.

#### Postdocs (1)

1. Itamar Benichou, 2014-2016, Macromolecules with domains undergoing hard-soft transitions [J10, J13, J15, J20, C18, C20, C24, J26]. PhD at Technion, *Gutwirth prize (2011), Fine Scholarship (2012), Russel Berrie Nano Institute Scholarship (2012, 2013)*.

---

\* Brakim program – a special B.Sc. & M.Sc. program for distinguished students, collaborative with the IDF.

† Re'amim - a special program for elite students aiming to expedite integration of honor students in research.

‡ 100 club - top 100 excellent students of the IDF academic school program.

## Theses in progress

(The year indicates expected graduation)

### PhD (3):

2. Eli Hanukah, 2017, Modeling the non-linear mechanical behavior of 3D structures undergoing finite deformations – a closed form approach [J23, J25].
3. Yossi Dayan, 2018, Post-buckling behavior of a 3D beam confined in a hollow tube, with David Durban as co-supervisor.
4. Shmuel Kats, 2018, Architected materials with bistable building blocks [J22, J27]. *BSc Summa cum Laude, MSc Summa cum Laude, Azrieli fellowship<sup>§</sup>*

### MSc (3):

5. Saar Nitezky, 2018, bistable behavior of 3-D curved beam, Brakim program,
6. Asael Shoham, 2018, metamaterials with bistable building blocks, Brakim program.
7. Yahav Angel, 2019, Mechanics of 2-D arrays of bistable elements.
8. Gregory Domeshek, 2017, On the Mechanism underlying Residual Force Enhancement in Skeletal Muscles [P5, C22, C28]. *BSc in Biomedical and Mechanical Eng.*

### Researcher (1):

9. Dr. Itamar Benichou, leading a “Kamin” project (Israel Innovation Authority) for developing a new technology for a passive acceleration-limiting suspension

## RESEARCH GRANTS:

2017-2021	<b>Israel Science Foundation</b> (ISF 581/17), 1,019,000 NIS, Mechanics of 2-D arrays of bistable elements.
2017-2018	<b>Israel Innovation Authority</b> (Kamin 60507), 374,000 NIS, A passive acceleration-limiting suspension.
2014-2017	<b>Israel Science Foundation</b> (ISF 724/14), 561,000 NIS, Mechanics of macromolecules with bistable domains undergoing hard-soft transitions.
2010-2013	<b>Israel Science Foundation</b> (ISF 1500/10), 468,000 NIS, Multi-scale modeling of skeletal muscles.
2010	<b>Mallat Family Fund</b> , 18,000 NIS, Damage in Muscles.

---

<sup>§</sup> The Azrieli Fellows Program provides generous financial support to the best and brightest researchers from Israel and abroad, who will use their training to become leaders in their respective fields

## PUBLICATIONS

### Theses

Ph.D. (direct track) - "Mechanical behavior of heterogeneous structures", 2005.  
Supervisor: Prof. E. Altus.

### Refereed papers in professional journals:

(Names of graduate students are underlined)

- J1. Altus E., Givli S., "Strength reliability of statically indeterminate heterogeneous beams", *Int. J. Solids Structures* 40(9):2069-2083, 2003.
- J2. Givli S, Altus E, "Effect of strength-modulus correlation on reliability of randomly heterogeneous beams", *Int. J. Solids Structures* 40(24):6703-6722, 2003.
- J3. Altus E., Givli S., "Fracture mechanics of a randomly heterogeneous double cantilever beam", *Int. J. Fracture* 130(4):743-763, 2004.
- J4. Altus E., Proskura A., Givli S., "A new functional perturbation method for linear non-homogeneous materials", *Int. J. Solids Structures* 42:1577-1595, 2005.
- J5. Altus E., Totry E., Givli S., "Optimized functional perturbation method and morphology based effective properties of randomly heterogeneous beams", *Int. J. Solids Structures* 42:2345-2359, 2005.
- J6. Givli S., Altus E., "Relation between stochastic failure location and strength in brittle materials", *J. Applied Mechanics* 73(4): 698-701, 2006.
- J7. Givli S, Altus E, "Improved functional perturbation method for reliability analysis of randomly heterogeneous beams", *Structural Safety* 28(4): 378-391, 2006.
- J8. Givli S., Bhattacharya K., "A coarse-grained model of the myofibril; overall dynamics and the evolution of sarcomere non-uniformities", *Journal of the Mechanics and Physics of Solids* 57: 221-243, 2009.
- J9. Givli S., "Towards multi-scale modeling of muscle fibers with sarcomere non-uniformities", *Journal of Theoretical Biology*, 264: 882-892, 2010.
- J10. Benichou I. Givli S., "The hidden ingenuity in titin structure", *Applied Physics Letters*, 98(9): 091904, 2011.  
Selected for the March 2011 issue of Virtual Journal of Biological Physics Research
- J11. Givli S., Giang H., Bhattacharya K., "Stability of multicomponent biological membranes", *SIAM Journal on Applied Mathematics*, 72(2): 489-511, 2012.
- J12. Atia L., Givli S., "Biological membranes from the perspective of smart materials – A theoretical study", *Int. J. Solids Structures*, 49(18): 2617-2624, 2012.
- J13. Benichou I., Givli S., "Structures undergoing discrete phase transformation", *Journal of the Mechanics and Physics of Solids*, 61(1): 94-113, 2013.

- J14. Moiseyev G.<sup>\*\*</sup>, Givli S., Bar-Yoseph P.Z., “Fibrin polymerization in blood coagulation - a statistical model”, *Journal of Biomechanics*, 46(1): 26-30, 2013.
- J15. Benichou I., Faran E., Shilo D., Givli S., “Application of a bi-stable chain model for the analysis of jerky twin boundary motion in NiMnGa”, *Applied Physics Letters*, 102: 011912, 2013.
- J16. Adler Y., Givli S., “Closing the loop: lamellipodia dynamics from the perspective of front propagation”, *Physical Review E*, 88: 042708, 2013.
- J17. Cohen T.<sup>††</sup>, Givli S., “Dynamics of a discrete chain of bi-stable elements: A biomimetic shock absorbing mechanism”, *Journal of the Mechanics and Physics of Solids*, 64: 426-439, 2014.
- J18. Atia L., Givli S., “Biological membrane response to temperature gradients at the single cell level”, *Journal of the Royal Society Interface*, 11: 20131207, 2014.
- J19. Givli S., “Contraction Induced Muscle Injury: Towards Personalized Training and Recovery Programs”, *Annals of Biomedical Engineering*, 43(2): 388-403, 2015 (Review paper).
- J20. Benichou I., Givli S., “Rate dependent response of nanoscale structures having a multiwell energy landscape”, *Physical Review Letters*, 095504, 2015.
- J21. Salinas G., Givli S., “Can a curved beam bistable mechanism have a secondary equilibrium that is more stable than its stress-free configuration?”, *Microsystem Technologies*, 21:943–950, 2015.
- J22. Katz S., Givli S., “The post-buckling behavior of a beam constrained by springy walls”, *Journal of the Mechanics and Physics of Solids*, 78: 443-466, 2015.
- J23. Hanukah E., Givli S., “Free vibration of an isotropic elastic skewed parallelepiped - a closed form study”, *European Journal of Mechanics A/Solids*, 53:131-142, 2015.
- J24. Faran E., Benichou I., Givli S., and Shilo D., “The effects of magnetic and mechanical microstructures on the twinning stress in Ni-Mn-Ga”, *Journal of Applied Physics*, S 118, 244104, 2015.
- J25. Hanukah E., Givli S., “A new approach to reduce the number of integration points in mass matrix computations”, *Finite Elements in Analysis and Design*, 116: 21-31, 2016
- J26. Benichou I., Zhang Y.<sup>\*\*</sup>, Dudko K. O., Givli S., “The rate dependent response of a bistable chain at finite temperature”, *Journal of the Mechanics and Physics of Solids*, 95: 44-63, 2016.
- J27. Katz S., Givli S., “The postbuckling behavior of planar elastica constrained by a deformable wall”, *Journal of Applied Mechanics*, 84: 051001, 2017.

---

<sup>\*\*</sup> PhD student with Prof. Bar-Yoseph, ME Technion. This paper resulted from Moiseyev’s project in the graduate course taught by Sefi Givli (biomechanics of cells and molecules).

<sup>††</sup> PhD student with Prof. Durban, AE Technion. This paper resulted from Cohen’s project in the graduate course taught by Sefi Givli (biomechanics of cells and molecules).

<sup>\*\*</sup> Postdoctorate scholar in the group of Olga K. Dudko, Department of Physics, UCSD.



J28. Katz S., Givli S., “Curvature-induced spatial ordering of composition in lipid membranes”, *Computational and Mathematical Methods in Medicine*, Volume 2017, Article ID 7275131.

### Submitted

J29. Hanukah E., Givli S., “Reducing the number of integration points in mass matrix computations of hexahedral elements”, submitted September 2017.

J30. Katz S., Givli S., “Solitary waves in a bistable chain”, Submitted October 2017.

### **Patents:**

P1. Givli S., Benichou I., “Disc spring assembly for vibration reduction”,  
Filed: September 2016, IL 247992;  
PCT filed: September 2017

### **Research reports**

“Failure analysis of aircraft mechanical systems”, 1997-2000, three investigations of F-15/F-16 accidents (Class A), IAF, Propulsion branch.

### **CONFERENCES**

(Names of graduate students are underlined, speaker appears first)

#### **Plenary or invited talks**

- I1. Givli S., “On the Importance of Biological Variability in Muscle Function”, International Workshop on Cell and Molecular Mechanics in Biomedicine (GEM4), Pasadena, July 21-25, 2008.
- I2. \*Givli S., Yair Adler, “Closing the loop – lamellipodia dynamics from the perspective of front propagation”, SIAM conference on mathematical aspects of materials science (MS-13), Philadelphia, June 9-12, 2013. Invited speaker for the minisymposium on Motility and Mechanics of Biomolecular Complexes.
- I3. Givli S., “Dynamics of bistable chains subjected to thermal fluctuations”, Invited speaker for the IUTAM Symposium on Mechanics of Soft Active Materials, Haifa, Israel (May 12-15, 2014).
- I4. Givli S., "the mechanics of bistable chains – theory and applications", Invited as a special guest in a symposium organized in honor of Prof. Kaushik Bhattacharya, Caltech, January 8-9, 2015.
- I5. Givli S., “At the interface of mechanics and biophysics”, invited speaker for the Biophysics workshop, Instituto Gulbenkian De Ciência (IGC), Portugal, February 9-13, 2015.

\*Contributed lectures were not solicited for the SIAM MS-13. Speakers must be invited.

## **Refereed papers and extended abstracts in conference proceedings**

- P1. Altus E., Givli S., 2002. "Effects of mesoscale size on strength and reliability of statistically heterogeneous microbeams", Proc. Int. Conf. On New challenges in Mesomechanics, Aalborg University, Denmark, pp.187-193.
- P2. Altus E., Givli S., 2004. "Morphology effects on the fracture energy of randomly heterogeneous double cantilever beams", Proc. of the 6<sup>th</sup> Int. Conference on Mesomechanics, May 31-June 4, 2004, Patras, Greece, pp 29-37.
- P3. Totry E., Givli S., Altus E., 2004. "Optimized functional perturbation method and morphology based effective properties of randomly heterogeneous beams", Proc. of the 17th Engineering Mechanics ASCE Conference, Newark, Delaware.
- P4. Bhattacharya K., Givli S., 2008, "The collective behavior of sarcomere ensembles: evolution of non-uniformities and insights on muscle function", Proc. of ICTAM 2008, Adelaide, Australia.
- P5. Givli S., Domeshek G., 2012, "Towards multiscale modeling of muscle fibers with sarcomere non-uniformities", Proc. of SES 2012, Georgia-tech, USA.
- P6. Givli S., Adler Y., 2012, "A theoretical study on lamellipodia dynamics", Proc. of SES 2012, Georgia-tech, USA.
- P7. Givli S., Doemshek G., 2015, "Sarcomere non-uniformities and residual force enhancement in skeletal muscles", 4th International Conference on Computational and Mathematical Biomedical Engineering, ENS Cachan, Paris, France.

## **Participation in organizing conferences**

### **International conferences**

1. Session Chairman. ISIMM 2012 - STAMM XVIII Symposium (The Int. Society for the Interaction of Mechanics and Mathematics), Technion, September 2012.
2. Organizer (with M. Jabareen) of the mini-symposium on skeletal and smooth muscle mechanics, International conference on Computational and Mathematical Biomedical Engineering, 29 June – 1 July, 2015, France.

### **Local conferences**

1. Session chairman. The Israel Society for Theoretical and Applied Mechanics (ISTAM-2009), Tel-Aviv (December 2009).
2. Session Chairman. The 31st Israel Conference on Mechanical Engineering (ICME-2010), Tel-Aviv, (June 2010).
3. Session Chairman. The 32nd Israel Conference on Mechanical Engineering (ICME-2012), Tel-Aviv, (October 2012).

## Lectures in conferences

(Names of graduate students are underlined, speaker appears first)

- C1. Givli S., Altus E., “Effects of stiffness morphology on the strength and reliability of heterogeneous microbeams”, IMEC conference, Dead sea, Israel (February 2002).
- C2. Altus E., Givli S.. “Effects of mesoscale size on strength and reliability of statistically heterogeneous microbeams”, Int. Conf. on New challenges in Mesomechanics (August 2002, Aalborg university, Denmark).
- C3. Givli S., Altus E., “Effects of modulus morphology on reliability of randomly heterogeneous beams”, 29<sup>th</sup> Israel Conference on Mech. Eng., Haifa, Israel (May 2003).
- C4. Givli S., Altus E., “Size effect and reliability of heterogeneous beams”, 13<sup>th</sup> International Conference on the Strength of Materials, Budapest, Hungary (August, 2003).
- C5. Altus E., Givli S., “Morphology effects on the fracture energy of randomly heterogeneous double cantilever beams”, 6<sup>th</sup> Int. Conference on Mesomechanics, Patras, Greece (June 2004).
- C6. Totry E., Givli S., Altus E., 2004. “Optimized functional perturbation method and morphology based effective properties of randomly heterogeneous beams”, The 17<sup>th</sup> Engineering Mechanics ASCE Conference, Newark, DE (June 2004).
- C7. Givli S., Altus E., “Fracture Mechanics of Randomly Heterogeneous Double Cantilever Beam”, The Annual Israeli Symposium on Composite Materials and Structures, Haifa, Israel (October 2004).
- C8. Givli S., “Non-Classical Moduli for Improved Solutions of Heterogeneous Structures”, ISTAM-2006 The Israel Society for Theoretical and Applied Mechanics, Tel-Aviv, Israel (January 2006).
- C9. Givli S., Bhattacharya K., “A Coarse-Grained Model of the Muscle; How Sarcomere Instability Leads to Muscle Damage”, 44<sup>th</sup> Annual Meeting of the Society of Engineering Science, Texas A&M University, College Station, TX. (October, 2007).
- C10. Givli S., Bhattacharya K., "A Rigorous Approach for Modeling the Effective Response of Muscle Myofibrils", SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia, PA (May 2008).
- C11. Givli S., Bhattacharya K, Giang H., “Membrane instabilities driven by the mobility of membrane proteins”, 7<sup>th</sup> AIMS (American Institute of Mathematical Sciences) International Conference on Dyn. Systems, Diff. Equations and Applications, Arlington, TX (May 2008).
- C12. Bhattacharya K., Givli S., 2008, “The collective behavior of sarcomere ensembles: evolution of non-uniformities and insights on muscle function”, ICTAM 2008, Adelaide, Australia (August 2008).
- C13. Givli S., Bhattacharya K, “The macro behavior of muscle myofibrils made from sarcomere ensembles studied by a finite volume method”, The 26<sup>th</sup> Israel Symposium on Computational Mechanics (ISCM-26), Haifa, Israel (April 2009).

- C14. Givli S., Bhattacharya K, Giang H., “Modeling multi-phase biological membranes: instabilities driven by coupling between shape and composition”, 7<sup>th</sup> Euromech Solids Mechanics Conference (ESMC-2009), Lisbon, Portugal (September 2009).
- C15. Givli S., “General framework for the stability of multi-phase biological membranes”, The Israel Society for Theoretical and Applied Mechanics (ISTAM-2009), Tel-Aviv (December 2009).
- C16. Givli S., “Stability of equilibrium configurations in multi-phase biological membranes”, 24<sup>th</sup> Umbrella Symposium on Modelling and Simulation in Medicine, Engineering and Sciences , Aachen, Germany (January 2010).
- C17. Giang H., Bhattacharya K., Givli S., “Stability of Multi-Component Biological Membranes”, The ASME Applied Mechanics and Materials Conference (McMAT-2011), Chicago (May 31-June 2 2011).
- C18. Benichou I., Givli S., “Theoretical and experimental study of multi-stable mechanisms”, International conference on mechanics of materials (ICM11), Como Lake – Italy (June 5-9 2011).
- C19. Moiseyev G., Givli S., Bar-Yoseph P.Z., “Building 'bottom-up' blood coagulation models using mechanical statistics”, Israel Symposium on Computational Mechanics, Beer Sheva (October 2011).
- C20. Benichou I., Givli S., “On the structure of the muscle protein titin and its relation to shape memory alloys”, ISTAM-2011 The Israel Society for Theoretical and Applied Mechanics, Tel-Aviv, Israel (December 25, 2011).
- C21. Atia L., Givli S., “Biological membranes from the perspective of smart materials”, ESMC-2012 the 8th European Solid Mechanics Conference, Graz, Austria (July 9-13, 2012).
- C22. Givli S., Domeshek G., “The role of sarcomere non-uniformities in residual force enhancement in skeletal muscles”, ESMC-2012 the 8th European Solid Mechanics Conference, Graz, Austria (July 9-13, 2012).
- C23. Salinas G., Elata D., Givli S., “A Novel Bi-stable Mechanism for MEMS Applications”, ICME-2012 (Israeli Conference on Mechanical Engineering), Tel-Aviv, Israel (October 17-18, 2012).
- C24. Benichou I., Givli S., “The hidden ingenuity in titn structure”, ICME-2012 (Israeli Conference on Mechanical Engineering), Tel-Aviv, Israel (October 17-18, 2012).
- C25. Adler Y., Givli S., “Lamellopida dynamics in crawling cells”, ICME-2012 (Israeli Conference on Mechanical Engineering), Tel-Aviv, Israel, (October 17-18, 2012).
- C26. Atia L., Givli S., “Biological membranes from the perspective of adaptive materials”, ICME-2012 (Israeli Conference on Mechanical Engineering), Tel-Aviv, Israel (October 17-18, 2012).
- C27. Givli S., “A Theoretical Study of Lamellipodia Dynamics”, ISIMM-2012 (International Society for the Interaction of Mechanics and Mathematics), Haifa, Israel (September 3-6, 2012).

- C28. Givli S., Domeshek G., “Towards multiscale modeling of muscle fibers with sarcomere non-uniformities”, SES 2012, Georgia-tech, USA (October 10-12, 2012).
- C29. Givli S., Adler Y., “A theoretical study on lamellipodia dynamics”, SES 2012, Georgia-tech, USA (October 8-12, 2012).
- C30. Cohen T., Givli S., “Insight on the dynamic shock absorbing mechanism in muscle tissue”, IUTAM Symposium on Mechanics of Soft Active Materials, Haifa, Israel (May 12-15, 2014).
- C31. Givli S., “Dynamics of bistable chains subjected to thermal fluctuations”, IUTAM Symposium on Mechanics of Soft Active Materials, Haifa, Israel (May 12-15, 2014).
- C32. Atia L., Givli S., “Biological membrane response to temperature gradients at the single cell level”, SES 2014, Purdue University, USA (October 1-3, 2014).
- C33. Givli S., Doemshek G., 2015, “Sarcomere non-uniformities and residual force enhancement in skeletal muscles”, 4th International Conference on Computational and Mathematical Biomedical Engineering, ENS Cachan, Paris, France.
- C34. Katz S., Givli S., 2016, “The postbuckling behavior of elastic beam constrained by spriggy walls”, Israel conference on mechanical engineering, Haifa.
- C35. Hanukah E., Givli S., 2017, “A new approach to reduce the number of integration points in mass matrix computations”, 42nd Israel Symposium on Computational Mechanics (ISCM-42), to be held in March 30 2017, Haifa, Israel.
- C36. Givli S., Katz S., 2017, “Curvature-induced spatial ordering of composition in lipid membranes”, 42nd Israel Symposium on Computational Mechanics (ISCM-42), to be held in March 30 2017, Haifa, Israel.
- C37. Givli S., Katz S., 2017, “The post buckling of a beam constrained by springy walls”, SES 2017, July 25-28 2017, Northeastern University, Boston, USA.
- C38. Givli S., Katz S., 2017, “On the impact response of a 1-D chain constructed from masses and bistable springs”, SES 2017, July 25-28 2017, Northeastern University, Boston, USA.

### Formal seminars

1. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Faculty of Engineering, Bar Ilan University, Israel, January, 2008.
2. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Mechanical Engineering, Tel-Aviv University, Israel, January, 2008.
3. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Mechanical Engineering, Ben Gurion University, Israel, January, 2008.

4. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Bio-Medical Engineering, Ben Gurion University, Israel, January, 2008.
5. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Mechanical Engineering, Technion - IIT, Israel, January, 2008.
6. “The collective behavior of sarcomere ensembles: evolution of non uniformities and insights on muscle function”, Structural and Solids Mechanics Seminar, University of California Los-Angeles (UCLA), May, 2008.
7. “A finite volume method for studying the collective behavior of sarcomere ensembles”, Computational and Applied Mathematics seminar, University of California Irvine (UC-Irvine), June, 2008.
8. “The Role of Sarcomere Non-Uniformities in Muscle Function and in Muscle Damage”, BioMechanics Seminars Series, California Institute of Technology (Caltech), May 27, 2008.
9. “On the stability of equilibrium configurations in biological membranes”, Biomechanics seminar series, Technion – Israel Institute of Technology, May 2009.
10. “The evolution of non-uniformities in sarcomere lengths within a single myofibril”, Ecole Polytechnique, Paris, June 2010.
11. “Mechanical behavior of multi-component vesicles”, Ecole Polytechnique, Paris, June 2010.
12. “On the stability of equilibrium configurations in biological membranes”, Hebrew University of Jerusalem, Racah center of physics, December 2010.
13. “A theoretical study on lamellipodia dynamics”, Ben Gurion University of the Negev, Mechanical Engineering, May 2012.
14. “A theoretical study on lamellipodia dynamics”, University of Pennsylvania, Mechanical Engineering, October 2012.
15. “Cells and macromolecules – a flavor of nanoscale biomechanics “, Technion, Mechanical Engineering, May 2014.
16. “Bi-stability and Multi-stability in structures“, Technion, Mechanical Engineering, February 2017.
17. “Bi-stability and Multi-stability in structures“, Ben Gurion University of the Negev, Mechanical Engineering, May 2017.
18. “Bi-stability and Multi-stability in structures“, Tel Aviv University, Mechanical Engineering, May 2017.

### **Participation in International Workshops:**

1. Models of Random Structures, Ecole des Mines de Paris, Paris, March 2002.
2. Physical Biology Bootcamp, Physical biology Laboratory, California Institute of Technology, Pasadena, June 2007.

3. Third GEM4 Summer School on Cell and Molecular Mechanics in Biomedicine, Pasadena, July 2008.
4. Nano-Bio Mechanics Workshop, Weizmann Institute of Science & Technion – IIT, December 2008.