



Figure 1. Schematics of an initially curved beam with length L , elevation h , thickness d , width b , electrode gap distance g_0 , and actuation voltage V_{ES} . Application of V_H between the two anchors allows for Joule heating of the micromechanical beam and tailoring of its midpoint elevation.

From: Lior Medina, Rivka Gilat, Bojan Ilic and Slava Krylov, "Two-directional operation of bistable latchable micro switch actuated by a single electrode, MDPI Proceeding of Eurosensors Paris, 2017

See:

http://www.ariel.ac.il/Projects/TRP/GeneralInformation.asp?numRec=167&numtafrit=1&id_lang=1&d=
https://www.researchgate.net/profile/Rivka_Gilat
https://www.researchgate.net/scientific-contributions/71847068_Rivka_Gilat

Department of Civil Engineering
 Ariel University, Israel

Education:

1997 Ph.D. Solid Mechanics Materials and Structures, Tel Aviv University, Israel
 1989 M.Sc. Solid Mechanics Materials and Structures, Tel Aviv University, Israel
 1981 M.Sc. Civil Engineering, Technion – Israel Institute of Technology, Haifa, Israel

Research Interests:

Stability and buckling; Micro-macro-structural analysis; Composite and smart materials and structures.

Selected Publications:

Book:

R. Gilat, L. Banks-Sills, Editors; (2010) *Advances in Mathematical Modeling and Experimental Methods for Materials and Structures. The Jacob Aboudi Volume.* Springer

Journal articles, etc.:

Gilat R and Aboudi J (1994), Dynamic buckling of viscoelastic plates and shells under cylindrical bending, *Journal of Sound and Vibration*, 174(3), 323-334

Gilat R, Aboudi J (1995) Dynamic buckling of nonlinear resin matrix composite structures. *Compos Struct* 32:81–88

Gilat, R. and Aboudi, J. (1995) Dynamic inelastic response and buckling of metal matrix composite infinitely wide plates due to thermal shocks. *Mech. Composite Mat. Struct.* 2, 257–271

Gilat, R. and Aboudi, J. (1996) Thermomechanical coupling effects on the dynamic inelastic response and buckling of metal matrix composite infinitely wide plates. *Composite Struct.* 35, 49–63.

Gilat R and Aboudi J (2000), Parametric stability of non-linearly elastic composite plates by Lyapunov exponents, *Journal of Sound and Vibration*, 235, 627-637.

R. Gilat, T. O. Williams and J. Aboudi, "Buckling of composite plates by global-local plate theory", *Composites Part B: Engineering*, Vol. 32, No. 3, April 2001, pp. 229-236

R. Gilat, J. Aboudi; (2001) Buckling analysis of composite structures. Durban, D., Givoli, D., Simmonds, J.G., (ed.) *Advances in the Mechanics of Plates and Shells*, Kluwer Advances in the Mechanics of Plates and Shells, 135-150

R. Gilat and J. Aboudi, "Buckling analysis of composite plates", *Advances in the Mechanics of Plates and Shells, Solid Mechanics and Its Applications*, 2002, Vol. 88, pp. 135-150

Gilat R, Aboudi J (2002) The Lyapunov exponents as a quantitative criterion for the dynamic buckling of composite plates. *Int J Solids Struct* 39:467-481

J. Aboudi, R. Gilat; (2005) Micromechanical analysis of lattice blocks. *Int. J. of Solids and Struct. Int. J. of Solids and Struct.*, 42, 4372-4392

J. Aboudi, R. Gilat; (2006) Buckling analysis of fibers in composite materials by wave propagation analogy. *Int. J. of Solids and Struct. Int. J. of Solids and Struct.*, 43, 5168-5181

R. Gilat, J. Aboudi, 'Thermal buckling of activated shape memory reinforced plate' *Smart Mater. Struct.* 15 (2006): 829-838

Y. Freed, J. Aboudi, R. Gilat; (2007) Thermomechanically micromechanical modeling of prestressed concrete reinforced with shape memory alloys fibers. *Smart Mater. Struct. Smart Mater. Struct.*, 16, 717-727

Y. Freed, J. Aboudi, R. Gilat; (2008) Investigation of shape memory alloy honeycombs by means of a micromechanical analysis. *Modelling Simul. Mater. Sci. Eng. Modelling Simul. Mater. Sci. Eng.*, 16

R. Gilat; (2010) A 3-D thermoelastic analysis of the buckling of a layer bonded to a compliant substrate and related problems. *Int. J. Solids Struct. Int. J. Solids Struct.*

R. Gilat, I. Calio, I. Elishakoff; (2010) Inhomogeneous beams possessing an exponential mode shape. *Mech. Re. Commun. Mech. Re. Commun.*

Medina, L., Gilat, R., Ilic, B., Krylov, S.: Experimental investigation of the snap-through buckling of electrostatically actuated initially curved pre-stressed micro beams. *Sens. Actuators A* 220, 323-332 (2014)

Medina, L.; Gilat, R.; Ilic, B.R.; Krylov, S. Experimental dynamic trapping of electrostatically actuated bistable micro-beams. *Appl. Phys. Lett.* 2016, 108, 073503.

Lior Medina, Rivka Gilat, Bojan Ilic and Slava Krylov, "Two-directional operation of bistable latchable micro switch actuated by a single electrode, MDPI Proceeding of Eurosensors Paris, 2017

Lior Medina, Rivka Gilat and Slava Krylov, "Modeling strategies of electrostatically actuated initially curved bistable micro plates", *International Journal of Solids and Structures*, Vols. 118-119, pp 1-13, July 2017