Oded Gottlieb

Henri Garih Chair in Mechanical Engineering
Technion – Israel Institute of Technology
oded@technion.ac.il

Professional Education
BSc & MSc, Technion, Civil Engineering (1983 & 1987).
PhD, Oregon State University, Ocean Engineering/Applied Math (1991).

Academic Appointments
Henri Garih Chair Professor in Mechanical Engineering, Technion (2018-present).
Lecturer/Senior Lecturer/Associate Professor/Professor, Mechanical Engineering, Technion (1993-2018).
Postdoctoral Research Associate, Massachusetts Institute of Technology, (1992-1993).

Main Research Interests
The research of Prof. Gottlieb is on ***Nonlinear and Chaotic Dynamical Systems*** which are unpredictable even without random perturbations that are inherent in nature. Prof. Gottlieb and his group make use of *multiple-scale asymptotics* and *numerical bifurcation analysis* to investigate nonlinear interactions in continuum mechanical systems and employ chaos theory to determine the nature of instabilities governed by sensitivity-to-initial-conditions. Current applications include nano-resonator sensor arrays and fluid-structure-interaction systems where complex spatio-temporal dynamics and self-excited system response are governed by global bifurcations. [research website: Nonlinear & Chaotic Dynamical Systems Group https://ncds.technion.ac.il/].

Selected Honors and Awards
*Recipient of the AIAA Jefferson Award for best student paper in Structural Dynamics (1991).
*Recipient of the Technion Award for Innovative Interdisciplinary Research (1999).
*Koiter Lecture, Netherlands Graduate School in Engineering Mechanics (2011).
*Plenary Lecture, EUROMECH Nonlinear Dynamics Conference, Vienna, Austria (2014).

Selected Public Professional Activities
*Subject Editor, Journal of Sound and Vibration (2019-2022)
*Associate Editor, Communications in Nonlinear Science and Numerical Simulation (2018-2021).
*Member of the EUROMECH Nonlinear Oscillations Conference Committee (2012-2021).

Selected Publications
*Gottlieb O. and Yim S.C.S., "Nonlinear oscillations, bifurcations and chaos in a multi-point mooring system with a geometric nonlinearity", Applied Ocean Research, 14, 241-257, 1992.
*Yarin AL., Gottlieb O., Roisman IV., Chaotic rotation of triaxial ellipsoids in simple shear flow", Journal of Fluid Mechanics, 340, 83-100, 1997.
*Gottlieb O. and Perkins NC., "Local and global bifurcation analyses of a spatial cable elastica", Journal of Applied Mechanics 66 (2), 352-360, 1999.
*Wolf K. and Gottlieb O., "Nonlinear dynamics of a noncontacting atomic force microscope cantilever actuated by a piezoelectric layer", Journal of Applied Physics, 91, 4701-4709, 2002.
*Zaitsev S., Shtempluck O., Buks E., and Gottlieb O., "Nonlinear damping in a micromechanical oscillator", Nonlinear Dynamics, 67, 859-883, 2012,
*Hollander, E. and Gottlieb, O., "Global bifurcations and homoclinic chaos in nonlinear panel optomechanical resonators under combined thermal and radiation stresses", Nonlinear Dynamics, 103, 3371-3405, 2021.