

**CURRICULUM VITAE****YORAM HALEVI****Professor****James H. Belfer Chair in Mechanical Engineering**

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**Academic Degrees**

1985	D.Sc. - Technion.
1981	M.Sc. - Faculty of Mechanical Engineering, Technion.
1974	B.Sc. - Faculty of Mechanical Engineering, Technion – Cum Laude.

**Academic Appointments at Technion**

2006 –	Professor, Faculty of Mechanical Engineering, Technion
1997 – 2006	Associate Professor, Faculty of Mechanical Engineering, Technion.
1993 – 1997	Senior lecturer (tenured), Faculty of Mechanical Engineering, Technion.
1989 – 1993	Senior lecturer, Faculty of Mechanical Engineering, Technion.
1987 – 1989	Lecturer, Faculty of Mechanical Engineering, Technion.
1981 – 1985	Research Assistant, Faculty of Mechanical Engineering, Technion.
1979 – 1981	Teaching Assistant, Faculty of Mechanical Engineering, Technion.

**Academic Appointments Elsewhere**

2010	Visiting Scientist, CNR-ITIA, Milan, Italy.
2005 (Aug. – Sep.)	Visiting Scholar, Virginia Tech, Blacksburg, VA, USA.
2004 (Aug. –Sep.)	Visiting Scholar, Université de Franche-Comté, Besançon, France
2003 –2004	Visiting Research Scholar, Virginia Tech, Blacksburg, VA, USA.
1992 – 1993	Visiting Professor, The Ohio State University
1988 (July – -Sep.)	Visiting Scholar, Penn State, State College, PA, USA.
1986 – 1987	Assistant Professor, Penn State, State College, PA, USA.

**Research Interests**

- Control of flexible structures.
- Model order reduction
- Model updating in flexible structures.
- Control of redundant systems
- Structural health monitoring
- Optimal control and estimation

## Courses Taught

### *At the Technion*

- Linear Systems
- Introduction to Control and Automation
- Control Theory
- Vibrations.
- Linear Control Systems (Graduate level)
- Optimization of Processes (Graduate level)
- Estimation and Control of Stochastic Processes (Graduate level)
- Control of Flexible Structures (Graduate level)

### *Elsewhere*

- Advanced Control Engineering (Graduate level, at Virginia Tech)
- Digital Control Systems (Graduate level, at Virginia Tech)
- Control Systems Design (at Ohio State)
- Lumped Parameter System Analysis (Graduate level, at Ohio State)
- Modeling of Dynamic Systems, Dynamics of Mechanical Systems (at Penn State)

## Honors and Awards

2012	Yanai Prize, Technion
2011	Fellow, ASME
2005, 2012	Excellence in Teaching, Technion.
1981, 1984	Gutwirth Scholarship.

## Technion Activities

2014 – 2018	Dean, Faculty of Mechanical Engineering
2014 – 2016	Member, Steering Committee of Technion - Guandong Institute of Technology
2013 – 2014	Dean, Division of Continuing Education and External Studies
2011	Member, Senate Steering Committee
2006 – 2009	Member, Standing Committee for Undergraduate and Graduate Studies.
2006 – 2008	Member, Degree Certification Committee, Graduate School.
2004 – 2013	Member, Interdepartmental Committee for Systems Engineering.
2005 – 2007	Member, ME Graduate Studies Committee (also 1993-7, 2002-3)
2004 – 2006	Head, Robotics, Control, Dynamics and Mechatronics study program.
1997	Member, Search Committee for Department Head.
1996 – 1997	Deputy Department Head for Undergraduate Studies.
1995 – 1996	Department Coordinator of Undergraduate Studies.

## Public Professional Activities

2017 –	Associate Editor, Mechanical Systems and Signal Processing (MSSP)
2009 – 2011	Chair, ASME ESDA Council, the governing body of the ASME Conferences on Engineering Systems Design and Analysis.
2003	Guest Editor – Journal of the Mechanical Behavior of Materials.
2002 – 2011	Head, Israeli section of ASME.
2002 – 2014	Member of ASME District H (Europe) Operation Board.

- 2002 – 2006 Member, the International Federation of Automatic Control (IFAC) Technical Committee on Linear Systems.
- 2000 – 2004 President, Israel Association of Automatic Control (IAAC), the Israeli national member organization of IFAC.

**Participation In Organizing Conferences**

- 2014 Program Chair, 12th Biennial ASME Conference on Engineering Systems Design and Analysis , July 2014, Copenhagen, Denmark.
- 2012 Track Co-Chair, 11th Biennial ASME Conference on Engineering Systems Design and Analysis , July 2-4, 2012, Nantes, France.
- 2012 Co-organizer, Belfer Symposium on Structural Dynamics Systems - Design, Control and Energy Harvesting, February 27, 2012, Technion, Haifa, Israel.
- 2010 Member, Scientific Committee, 10th Biennial ASME Conference on Engineering Systems Design and Analysis, July 12-14, 2010, Istanbul, Turkey.
- 2010 Track Chair 10th Biennial ASME Conference on Engineering Systems Design and Analysis , July 12-14, 2010, Istanbul, Turkey.
- 2009 Member, International Program Committee, 17th IEEE Mediterranean Conference on Control and Automation, June 24-26, Thessaloniky, Greece.
- 2009 Member, International Program Committee, 6th IFAC Symposium on Robust Control Design (ROCOND), June 16-18, Haifa, Israel.
- 2008 General Chair, 9th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA), July 2008, Haifa, Israel.
- 2008 Member, International Program Committee, 16th IEEE Mediterranean Conference on Control and Automation, June 25-27, Ajaccio-Corsica, France.
- 2008 Member, International Scientific Committee, Mechanics of Slender Structures, MOSS, July 23-25, Baltimore, Maryland, USA.
- 2008 Organizer, Israel Association of Automatic Control workshop on Control of Flexible Structures, Herzliya (similar workshops in 1994, 1998, 2001).
- 2006 Member, Scientific Committee, 8th Biennial ASME Conference on Engineering Systems Design and Analysis, July 4-7, Turin, Italy.
- 2006 Track Leader 8th Biennial ASME Conference on Engineering Systems Design and Analysis, July 4-7, Turin, Italy.
- 2005 Member, International Program Committee, 13th IEEE Mediterranean Conference on Control and Automation, June 27-29, Limassol, Cyprus.
- 2004 Track Leader 7th Biennial ASME Conference on Engineering Systems Design and Analysis, July 19-22, Manchester, UK.
- 2003 Member, Program Committee, 2003 American Control Conference, June 4-6, Denver, CO.
- 2003 Member, Best Student Paper Award Committee, 2003 American Control Conference, June 4-6, Denver, CO.
- 2003 Member, International Program Committee, 11th IEEE Mediterranean Conference on Control and Automation, June 18-20, Rhodes, Greece.
- 2003 General Chair, The 29th Israeli Mechanical Engineering Conference, May 12-13, Haifa.
- 1995 Member, International Program Committee, 3rd IEEE Symposium on Control and Automation, July 11-13, Limassol, Cyprus.

**Reviewer for Journals:**

AIAA Journal of Guidance and Control, Asian Journal of Control, ASME Journal of Applied Mechanics, ASME Journal of Dynamic Systems, Measurement and Control, ASME Journal of Vibration and Acoustics, Automatica, European Journal of Control, IEE Proceedings, IEEE Control System Technology, IEEE Transactions on Automatic Control, IEEE Transactions on Robotics, Industrial Engineering & Chemistry Research, International Journal of Control, International Journal of Innovational Computing & Information Control, International Journal of Systems Science, Journal of Dynamics and Control, Journal of Robust and Nonlinear Control, Journal of Sound and Vibration, Mechanical Systems and Signal Processing, Mechanics Research Communications, Optimal Control Applications and Methods, Sensors, Shock and Vibration Journal.

**Reviewer for Conferences:**

American Control Conference, ASME Conference on Engineering Systems Design and Analysis, ASME Design Engineering Technical Conferences, European Control Conference, IEEE Conference on Decision and Control, IEEE Mediterranean Control Conference, IFAC Symposium on Robust Control Design, IFAC World Congress,

**Graduate Students**

*Ph.D.*

1. Mani Fischer (1992) - "Reduced Order Controller Design".(co-advisor - S. Gutman)
2. Agnes Cohen (1994) - "Controller Order Reduction - the Optimal Projection Approach".
3. Rachel Keningbuch (1999) - "Model Updating in Flexible Structures".
4. Natalia Raskin (2001) - "Control of Flexible Structures".
5. Alina Zlochevsky (2001) - "Reconstruction of Moving Geometrical Shapes Based on Measurements Obtained by a Moving Sensor".
6. Irit Peled (2010) - "Modeling and Control of Flexible Structures via the Wave Approach".
7. Lea Sirota (2016) – "Traveling wave approach to modeling and control of flexible systems".

*M.Sc.*

1. Izhac Lev (1989) – "Adaptive Control of Robotic Arm".
2. Agnes Cohen (1990) – "Reduced Order Estimators and Controllers".
3. Roni Robinson (1991) – "Computer Systems for Operating and Controlling Robots".
4. Nathan Krasney (1991) – "Tuning Procedure of PID Controllers in Interactive Systems" (with Z.J. Palmor).
5. Izhac Rom (1991) – "Control of Nonminimum Phase Systems" (with Z.J. Palmor).
6. Arie Karniel (1991) – "Reduced Order Observers for Failure Detection".
7. Ran Peled (1992) – "Properties of Reduced Order Models".
8. Maurice Zamir (1992) – "Measures of Observability" (with I. Bar-Itzhack).
9. Tallia Gilat (1992) – "Numerical Solution of the Optimal Projection Equations".
10. Julia Padinker (1993) – "Order Reduction of Tomato Growth Model for Optimal Control".
11. Tsvi Efrati (1993) – "Tuning Procedure of PID controllers in MIMO Systems" (with Z.J. Palmor).
12. Alon Stein (1995) – "Robust Dead Time Compensator for Disturbance Absorption" (with Z.J. Palmor).
13. Tal Mazor (1995) – "Tuning of PID Controllers for MIMO Systems" (with Z.J. Palmor).
14. Yoav Nave (1996) – "Dynamic Finite Element Modeling and Control of a Unicycle" (with P.Z. Bar-Yoseph).
15. Natalya Raskin (1996) – "Comparative Investigation of Model Order Reduction Methods".
16. Alina Zlochevsky (1997) – "Solution of the Optimal Order Reduction Equations".
17. Nir Tal (1997) – "Robust LQG Controllers".
18. Gabor Kosha(2001) – "Modeling and Control of a 3-D inverted pendulum" (with O. Gottlieb).
19. P. Tarazaga (2004) – "Model Updating using Quadratic Form" (at Virginia Tech, with D.J. Inman).
20. Clarice Wagner-Nachshoni (2005) – "Control of Multi-Link Flexible Structures".

## CV Yoram Halevi

21. Shay Yulzary (2008) – "The Electromechanical Response of a Double-Axis Electrostatic Comb-Drive Actuator" (with D. Elata).
22. Dimitry Vilensky (2010) – "Model Updating via Modified Reference Basis with Connectivity Constraints".
23. Guy Scher (2012) – "Control of a flexible beam using infinite dimension transfer functions".
24. Lea Sirota (2013) – "Traveling wave approach to modeling and control of flexible systems" (direct PhD).
25. Lior Alpert (2015) – "Minimum Energy control of redundant robots".
26. Uriel Nusbaum (2017) – "Path Design and High-Level Control of Redundant Manipulators".

### *M.E. Students (report option):*

1. Adam Shapira (1995) – "Reduced Order Models for Mechanical Systems".
2. Avi Yegodnik (2000) – "Numerical Algorithms for Solving the Order Reduction Problem".
3. Yoram Hart (2002) – "Control of Flexible Structures".
4. Gary Goldfarb (2003) – "Input Shaping in Vibrating Systems".
5. Anna Aryev (2006) – "Analysis, Optimization and Functionality of a Stretcher Support System".
6. Amir Markievicz (2013) – " Numerical Simulations of Wave Propagation in Euler Bernoulli Beams".
7. Margarita Stein (2017) – "Structural Health Monitoring via Guided Waves".

### **Funded Research Projects (main)**

2010-2014	Israel Science Foundation, "Modeling and control of flexible beams and membranes via infinite dimension transfer functions".
2009	Intel, "Modeling and Control of Thermal Testing Systems".
2004-2006	Israel Science Foundation, "Tracking Control of Flexible Structures".
2004-2008	European Union 6 <sup>th</sup> Framework Programme, "Virtual Research Lab for a Knowledge Community in Production (VRL-KCiP)", Network of Excellence, with M. Shpitalni, A. Fischer and international partners.
2002-2005	NSF, "Updating for Model-Based Simulation," with D.J. Inman, (at Virginia Tech).
1997 - 1998	Ayalon Highways, "Estimation of Traffic Patterns", with E. Ben Shabat.
1989 - 1994	Israel Electric Corporation, "Optimization of Load Shedding Schedules".
1986 - 1988	Bendix Flight Systems "Study of Network Protocols for Distributed Digital Flight Control of Advanced Aircraft". with A. Ray (at Penn State).

### **Publications**

#### *Theses:*

D.Sc. Thesis:	"Inadmissible Optimal LQG Systems", (1985)
M.Sc. Thesis:	"Stability of Systems with Dead Time Compensator", (1981)

#### *Journal Papers:*

1. Z.J. Palmor and **Y. Halevi**, "On the Design and Properties of Multivariable Dead Time Compensators", *Automatica*, Vol. 19(3), 255 - 264, 1983.
2. **Y. Halevi** and Z.J. Palmor, "Extended Limiting Forms of Optimum Observers and LQG Regulators", *International Journal of Control*, Vol. 43, 198 - 212, 1986.
3. **Y. Halevi** and Z.J. Palmor, "Inadmissibility of SISO Singular Observation LQG Design", *Optimal Control Applications and Methods*, Vol. 7(3), 219 – 241, 1986.
4. Z.J. Palmor and **Y. Halevi**, "On the Existence of an Optimal Observer in Singular Measurement Systems", *IEEE Transactions on Automatic Control*, Vol. AC-31, 683-685, 1986.

5. **Y. Halevi** and Z.J. Palmor, "Admissible MIMO Singular Observation LQG Designs", *Automatica*, Vol. 24(1), 43 - 51, 1988.
6. Z.J. Palmor and **Y. Halevi**, "On the Recovery Procedure for LQG Systems", *Automatica*, Vol. 24(2), 275 - 277, 1988.
7. **Y. Halevi**, "Limiting Forms of Optimal Observers", *International Journal of Control*, Vol. 47, 209 - 216, 1988.
8. **Y. Halevi** and A. Ray, "Integrated Communication and Control Systems: Part I - Analysis", *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 110(4), 367 - 373, 1988.
9. A. Ray and **Y. Halevi**, "Integrated Communication and Control Systems: Part II - Design Considerations", *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 110(4), 374 - 381, 1988.
10. **Y. Halevi**, "The Optimal Reduced Order Estimator for Systems with Singular Measurement Noise", *IEEE Transactions on Automatic Control*, Vol. AC-34, 777-781, 1989.
11. **Y. Halevi**, "Optimal Observers for Systems with Colored Noises", *IEEE Transactions on Automatic Control*, Vol. AC-35, 1075 - 1078, 1990.
12. **Y. Halevi** and A. Ray, "Performance Analysis of Integrated Communication and Control System Networks", *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 112, 365 - 372, 1990.
13. Z.J. Palmor and **Y. Halevi**, "Robustness Properties of Sampled-Data Systems with Dead Time Compensators", *Automatica*, Vol. 26(3), 637 - 640, 1990.
14. **Y. Halevi**, D. S. Bernstein and W.M. Haddad, "On Stable full-order and reduced-order LQG Controllers." *Optimal Control Applications & Methods*, Vol. 12(3), 163-172, 1991.
15. R. Luck, A. Ray and **Y. Halevi**, "Observability under Recurrent Loss of Data". *AIAA Journal of Guidance, Control and Dynamics*. Vol. 15(1), 284 - 287, 1992.
16. W.M. Haddad, D.S. Bernstein, Hsing-Hsin Huang, and **Y. Halevi**, "Fixed Order Sampled - Data Estimation". *International Journal of Control*, Vol. 55, 129 - 189, 1992.
17. Z.J. Palmor, **Y. Halevi** and T. Efrati, "Limit Cycles in Decentralized Relay System", *International Journal of Control*, Vol. 56, 755 - 765, 1992.
18. **Y. Halevi**, "Frequency Weighted Model Reduction via Optimal Projection Equations". *IEEE Transactions on Automatic Control*, Vol. AC-37, 1537-1542, 1992.
19. A. Cohen- Jalfon and **Y. Halevi**, "On Partially Augmented Observers for Systems with Colored Noises", *International Journal of Control*, Vol. 57, 335 - 349, 1993.
20. **Y. Halevi**, W.M. Haddad and D. S. Bernstein, "A Riccati Equation approach to the Singular LQG Problem", *Automatica*, Vol. 29(3), 773 - 778, 1993.
21. Z.J. Palmor, **Y. Halevi** and T. Efrati, "Determination of Limit Cycles in Decentralized Relay Systems via the Z- Transform", *Fundamentals of Discrete-Time Systems*, H. Jamshidi, M. Mansur, B.D.O. Anderson and N.K. Bose (Editors), TSI Press, 383-391, 1993.
22. **Y. Halevi** and D. Kottick, "Optimization of Load Shedding Schedules", *IEEE Power Engineering Society Transactions on Energy Conversion*, Vol. 8, 207 - 213, 1993.
23. **Y. Halevi**, "Stable LQG Controllers", *IEEE Transactions on Automatic Control*, Vol. AC-39, 2104-2106, 1994.
24. Z.J. Palmor, **Y. Halevi** and Z. Rom, "Multirate Output Control for SISO Non-minimum Phase Systems", *Industrial Engineering & Chemical Research*, Vol. 33(12), 3196-3201, 1994.
25. J. Park, **Y. Halevi** and G. Rizzoni, "A New Interpretation of the Fault Detection Filter Part 2: The Optimal Detection Filter". *International Journal of Control*, Vol. 60, 1339-1351, 1994.
26. Z.J. Palmor, **Y. Halevi** and T. Efrati, "A General and Exact Method for Determining Limit Cycles in Decentralized Relay Systems". *Automatica*, Vol. 31(9), 1333-1339, 1995.
27. Z.J. Palmor, **Y. Halevi** and N. Krasney, "Autoamtic Tuning of Decentralized PID Controllers for TITO Processes", *Automatica*, Vol. 31(7), 1001-1010, 1995.
28. **Y. Halevi**, "Reduced Order Models with Delay", *International Journal of Control*, Vol. 64, 733-744, 1996.
29. **Y. Halevi**, Z.J. Palmor and T. Efrati, "Autoamtic Tuning of Decentralized PID Controllers for MIMO Processes", *Journal of Process Control*, Vol. 7(2), 119-128, 1997.
30. **Y. Halevi**, A. Zlochevsky and T. Gilat, "Parameter Dependent Model Order Reduction ", *Int. J. of Control*, Vol. 66, 463-485, 1997.

31. R. Kenigsbuch and **Y. Halevi**, "Model Updating in Structural Dynamics: A Generalized Reference Basis Approach", *Mechanical Systems and Signal Processing*, Vol. 12, 75-90, 1998.
32. **Y. Halevi** and N. Raskin, "Discrete-Time Frequency Weighted Order Reduction and Application to Sampled-Data Modeling", *Optimal Control Applications & Methods*, Vol. 19(5), 315-329, 1998.
33. A. Cohen and **Y. Halevi**, "Reduced-order observer for systems with piecewise constant inputs", *Optimal Control Applications & Methods*, Vol. 20(1), 51-58, 1999.
34. Y. Naveh, P.Z. Bar-Yoseph and **Y. Halevi**, "Nonlinear Modeling and Control of a Unicycle", *Dynamics and Control*, Vol 9, 279-296, 1999.
35. A. Zlochevsky and **Y. Halevi**, "Parameter Dependent Reduced Order Estimators", *Journal of Guidance, Control and Dynamics*, Vol. 22, 846-851, 1999.
36. **Y. Halevi** and R. Kenigsbuch, "Updating of the Complex Modeshapes and the Damping Matrix", *Inverse Problems in Engineering*, Vol. 8, 143-162, 2000.
37. N. Raskin and **Y. Halevi**, "Rate Feedback Control of a Free-Free Uniform Flexible Rod", *AIAA Journal of Guidance, Control, and Dynamics*, Vol. 24, 1037-1040, 2001.
38. **Y. Halevi**, "Approximated Gramians and Balanced Realization of Lightly Damped Flexible Structures ", *IEEE Transactions on Automatic Control*, Vol. 47, 193-198, 2002.
39. **Y. Halevi** and I. Bucher, "Model Updating via Weighted Reference Basis with Connectivity Constraints", *Journal of Sound and Vibration*, Vol. 265, 561-581, 2003.
40. **Y. Halevi**, R. Kenigsbuch and I. Bucher, "Model Updating: A Combined Reference Basis - Sensitivity Method ", *Journal of the Mechanical Behavior of Materials*, Vol. 14(6), 355-368, 2003.
41. **Y. Halevi**, "Discussion on the paper "UDU factored discrete-time Lyapunov recursions solve optimal reduced-order LQG problems", *European Journal of Control*, Vol. 10(6), 607-609, 2004.
42. **Y. Halevi**, C. A. Morales, and D. J. Inman, "Combined Expansion and Orthogonalization of Experimental Modeshapes", *ASME Journal of Vibration and Acoustics*, Vol. 127, 188-196, 2005.
43. **Y. Halevi**, "Control of Flexible Structures Governed by the Wave Equation Using Infinite Dimensional Transfer Functions", *ASME Journal of Dynamic Systems, Measurement, and Control* , Vol. 127, 579-588, 2005.
44. **Y. Halevi**, "Projection Properties of the Optimal  $L_2$  Reduced Order Model", *International Journal of Control*. Vol. 79(4), 298-310, 2006.
45. **Y. Halevi** and C. Wagner-Nachshoni, "Transfer Function Modeling of Multi-Link Flexible Structures", *Journal of Sound and Vibration*, Vol. 296(1-2), 73-90, 2006.
46. **Y. Halevi**, "On The Class of Reduced Order Models Obtainable by Projection", *Automatica*, Vol. 42(11), 2009-2016, 2006.
47. P.A. Tarazaga, **Y. Halevi** and D.J. Inman, "The Quadratic Compression Method for Model Updating and Its Noise Filtering Properties", *Mechanical Systems and Signal Processing*, Vol. 21(1), 58-73, 2007 .
48. I. Peled and **Y. Halevi**, "Continuous Modeling of Multi-Link Flexible Transmission", *Journal of Shock and Vibration*, Vol. 15(2), 163-177, 2008 .
49. P.A. Tarazaga, **Y. Halevi** and D.J. Inman, "Modified Quadratic Compression Method for Mass and Stiffness Updating", *Mechanical Systems and Signal Processing* , Vol. 23(6), 1773-1783, 2009.
50. M. Weiss-Cohen, A. Bondarenko, and **Y. Halevi**, "Reconstruction of 3D Models from Measurements Obtained by a Moving Sensor", *Computer-Aided Design and Application (CAD&A)*, Vol. 6(1), 103-114, 2009
51. L. Sirota and **Y. Halevi**, "Free Response and Absolute Vibration Suppression of Second Order Flexible Structures – The Traveling Wave Approach.", *ASME Journal of Vibration and Acoustics*, Vol. 132, 031008, 2010.
52. **Y. Halevi** and I. Peled, "Absolute Vibration Suppression (AVS) Control – Modeling, Implementation and Robustness ", *Journal of Shock and Vibration*, Vol. 17 (4-5), pp. 349-357, 2010.
53. **Y. Halevi**, E. Carpanzano, G. Montalbano and Y. Koren, "Minimum Energy Control of Redundant Actuation Machine Tool", *CIRP Annals – Manufacturing Technology*, Vol. 60, pp. 433-436, 2011.
54. L. Sirota and **Y. Halevi**, "Extended D'Alembert Solution of Finite Length Second Order Flexible Structures with Damped Boundaries", *Mechanical Systems and Signal Processing*, Vol. 39 (1-2), pp. 47-58, 2013.

55. I. Peled, W.J. O'Connor and **Y. Halevi**, "On the relationship between wave based control, absolute vibration suppression and input shaping", *Mechanical Systems and Signal Processing*, Vol. 39 (1-2), pp. 80-90, 2013.
56. L. Sirota and **Y. Halevi**, "Modal Representation of Second Order Flexible Structures with Damped Boundaries", *ASME Journal of Vibration and Acoustics*. Vol. 135(6), 064508, 2013.
57. L. Sirota and **Y. Halevi**, "The complete infinite series and traveling wave solution of systems governed by the second order wave equation with boundary damping", *Wave Motion*. Vol. 51 (1), pp. 114-214, 2014.
58. **Y. Halevi**, E. Carpanzano and G. Montalbano, "Minimum Energy Control of Redundant Linear Manipulators", *ASME Journal of Dynamic Systems, Measurement, and Control*. 2014; Vol. 136(5), 051016, 2014.
59. **Y. Halevi**, "Reference Basis Model Updating Following the Baruch and Bar-Itzhack Approach", *Advances in Estimation, Navigation, and Spacecraft Control*, 79-94, 2015.
60. L. Sirota and **Y. Halevi**, "Fractional order control of the two-dimensional wave equation", *Automatica*. Vol. 59 (9), pp. 152-163, 2015.

**Conference Papers:**

1. A. Ray, **Y. Halevi**, S. Lee and S.H. Hong, "Network Access Protocols for Real time Distributed Digital Control Systems", *IEEE Industry Application Society Annual Meeting*, Denver, CO, 1488-1495, 1986.
2. A. Ray, **Y. Halevi** and L.W. Liou, "Dynamic Performance and Stability of Integrated Communication and Control Systems", *AIAA Guidance, Navigation and Control Conference*, Monterey, CA, 1987.
3. A. Ray, **Y. Halevi**, S.H. Hong and S. Lee, "Communication Networks for Autonomous Manufacturing and Process Control", *ASME International Computers in Engineering Conference*, New York, NY, Vol. 2, 39-45, 1987.
4. T.M. Feurer and **Y. Halevi**, "Stable Suboptimal LQG Controllers", *The Eighteenth Annual Pittsburgh Conference on Modeling and Simulation*, Pittsburgh PA, 6p, 1987.
5. **Y. Halevi**, "Design of Stable Suboptimal LQG Controllers", *American Control Conference*, Minneapolis, MN, 113-117, 1987.
6. **Y. Halevi**, A. Ray, "Integrated Communication And Control Systems: Part I – Analysis", *ASME Winter Annual Meeting*, Chicago, IL, 7p, 1988.
7. A. Ray, **Y. Halevi**, "Integrated communication and control systems: Part II – Design Considerations", *ASME Winter Annual Meeting*, Chicago, IL, 8p, 1988.
8. A. Ray and **Y. Halevi**, "Finite Dimensional Modeling of Network - Induced Delays for Real-Time Control Systems", *American Control Conference*, Atlanta, GA, 1077-1082, 1988.
9. **Y. Halevi**, "Optimal Observers for Systems with Colored Noises", *IEEE International Conference on Control and Applications (ICCON)*, Jerusalem, 4p, 1989.
10. **Y. Halevi**, W.M. Haddad and D. S. Bernstein, "A Riccati Equation Approach to the Singular LQG Problem", *American Control Conference*, Pittsburgh, PA, 2077-2078, 1989.
11. I. Lev, J. Dayan and **Y. Halevi**, "Adaptive Control of Robot Arm", *23rd Israel Conference on Mechanical Engineering*, 5p, 1990.
12. **Y. Halevi**, "Frequency Weighted Model Order Reduction via Optimal Projection", *23rd Israel Conference on Mechanical Engineering*, 5p, 1990.
13. A. Cohen-Jalfon and **Y. Halevi**, "On Partially Augmented Observer for Systems with Colored Noises", *23rd Israel Conference on Mechanical Engineering*, 5p, 1990.
14. **Y. Halevi**, "Frequency Weighted Model Order Reduction", *ASME Winter Annual Meeting*, Dallas, TX, 5p, 1990.
15. **Y. Halevi**, "Frequency Weighted Model Reduction via Optimal Projection", *29th IEEE Conference on Decision and Control*, Honolulu, HI, 2906-2911, 1990.
16. A. Cohen - Jalfon and **Y. Halevi**, "On Partially Augmented Observers for Systems with Colored Noises", *29th IEEE Conference on Decision and Control*, Honolulu, HI, 210-215, 1990.
17. **Y. Halevi**, "Optimal Reduced Order Models with Delay", *30th IEEE Conference on Decision and Control*, Brighton, UK, 602-607, 1991.



18. **Y. Halevi**, "Discrete-Time Frequency Weighed Model Order Reduction", *30th IEEE Conference on Decision and Control*, Brighton, UK, 1972-1973, 1991.
19. Z.J. Palmor, **Y. Halevi** and N. Krasney, "Automatic Tuning of Decentralized PID Controllers for TITO Processes", *IFAC World Congress*, 6p, 1993.
20. Z.J. Palmor, **Y. Halevi** and Z. Rom, "Multirate Output Control for SISO Non-minimum Phase Systems", *IFAC World Congress*, 6p, 1993.
21. **Y. Halevi**, "Model Reduction of Dynamic Systems", *Workshop on Identification and Diagnosis of Mechanical Structures*, University of French Comte, Besancon, France, November 1993
22. A. Cohen - Jalfon and **Y. Halevi**, "Optimal Closed Loop Approximation by Reduced Order Controllers", *American Control Conference*, Baltimore, MD, 3433-3437, 1994.
23. **Y. Halevi**, "Stable LQG Controllers", *American Control Conference*, Baltimore, MD, 6p, 1994.
24. **Y. Halevi**, "Order Reduction of Lightly Damped Systems by Approximated Balanced Realization", *The 3rd IEEE Mediterranean Symposium on New Directions in Control and Automation*, Limassol, Cyprus, 360-367, 1995.
25. **Y. Halevi** and A. Cohen, "Optimal Reduced Order Observers with Steady State Gain Preservation", *The 3rd IEEE Mediterranean Symposium on New Directions in Control and Automation*, Limassol, Cyprus, 19-24, 1995.
26. **Y. Halevi**, Z.J. Palmor and T. Efrati, "Automatic Tuning of Decentralized PID Controllers for MIMO Processes", *The 3rd IEEE Mediterranean Symposium on New Directions in Control and Automation*, Limassol, Cyprus, 353-360, 1995.
27. **Y. Halevi**, "An Efficient Approximated Algorithm for Balancing and Order Reduction of Lightly Damped Systems", *ASME 15th Biennial Conference on Vibration and Noise*, Boston, MA, 1111-1118, 1995.
28. **Y. Halevi**, "Model Order Reduction by Approximated Balancing", *Belfer Symposium*, Tecnion, Haifa, 1995.
29. R. Kenigsbuch and **Y. Halevi**, "Model Updating of Vibrating Systems Using Generalized Weighting functions", *26th Israel Conference on Mechanical Engineering*, 6p, 1996.
30. T. Gilat, A. Zlochevsky, and **Y. Halevi**, Solving The Optimal Projection Equations Via Homotopic Methods , *Israel Association of Automatic Control workshop on Numerical Methods in Control* , Herzliya 1996.
31. A. Zlochevsky and **Y. Halevi**, "Parameter Dependent Reduced Order Estimators", *European Control Conference*, Brussels, 6p, 1997.
32. **Y. Halevi** and E. Ben-Shabat "A New Method For Freeway O-D Matrix Estimation", *14th International Symposium of Transportation and Traffic Theory (ISTTT)*, Jerusalem, Israel, 1997.
33. R. Kenigsbuch and **Y. Halevi**, "Generalized Reference Basis Model Updating in Structural Dynamics", *ASME 16th Biennial Conference on Vibration and Noise*, Sacramento , CA, 9p, 1997.
34. Y. Naveh, P.Z. Bar-Yoseph and **Y. Halevi**, "Time Spectral Modeling and Control of a Unicycle", *IACM - Fourth World Congress on Computational Mechanics (WCCM)*, Buenos Aires, Argentina, 1998.
35. N. Raskin and **Y. Halevi**, "Modeling and Control of Flexible Structures", *Motion Control Conference (IFAC sponsored)*, Grenoble, France, 173-178, 1998.
36. **Y. Halevi**, Approximated Gramians And Balanced Realization Of Flexible Structures With Light Damping, *Israel Association of Automatic Control workshop on Control of Flexible Structures*, Herzliya, 1998.
37. **Y. Halevi**, "Optimal Reduced Order Estimation- A Guided Tour", *The 39th Israel Annual Conference on Aerospace Sciences* , Israel, 135-141, 1999.
38. N. Raskin and **Y. Halevi**, "Noncolocated Control of Flexible Structures", *The 39th Israel Annual Conference on Aerospace Sciences* , Israel, 177-185, 1999.
39. R. Kenigsbuch and **Y. Halevi**, "Updating the Damping Matrix and the Complex Modesshapes", *The 39th Israel Annual Conference on Aerospace Sciences* , Israel, 198-204, 1999.
40. N. Raskin and **Y. Halevi**, "Control of Flexible Structures Using Models with Dead Time", *The 7th IEEE Mediterranean Conference on Control and Automation*, Haifa, Israel, 782-794, 1999.
41. **Y. Halevi**, "Balanced Realization of Flexible Structures with General Damping: A Power Series Approach", *The 7th Mediterranean Conference on Control and Automation*, Haifa, Israel, 795-809, 1999.

42. **Y. Halevi**, "Approximated Gramians and Balanced Realization of Flexible Structures with Light Damping", *European Control Conference*, Karlsruhe, Germany, 6p, 1999.
43. **Y. Halevi** and R. Kenigsbuch, "Updating of the complex Modeshapes and the Damping Matrix", *Identification in Engineering*, Swansea, UK, 251-260, 1999.
44. **Y. Halevi**, " Model Updating for Normal and Damped Systems : A Generalized Reference Basis Approach", *Euromech 401 : Inverse Methods in Structural Dynamics*, Liverpool , UK, 1999.
45. N. Raskin and **Y. Halevi**, "Control of Flexible Structures Governed by the Wave Equation", *American Control Conference*, Arlington, VA, 2486-2491, 2001.
46. **Y. Halevi** and I. Bucher, "Reference Basis Model Updating with Connectivity Constraints", *International Conference on Structural System Identification*, Kassel, Germany, 669-678, 2001.
47. Y. Chait, C. V. Hollot, V. Misra, H. Han and **Y. Halevi**, "Dynamic Analysis of Some TCP Networks", *American Control Conference*, Anchorage, AK, 2430-2435, 2002.
48. **Y. Halevi** "On Model Order Reduction Via Projection", *IFAC World Congress*, Barcelona, Spain, 6p, 2002.
49. **Y. Halevi** and I. Bucher, "Reference Basis Model Updating with Connectivity Constraints", *ISMA*, Lueven, Belgium, 1067-1075, 2002.
50. **Y. Halevi**, "Tracking Control of Flexible Rods", *ISMA*, Lueven, Belgium, 95-102, 2002.
51. **Y. Halevi**, "On Control of Flexible Structures", *41st IEEE Conference on Decision and Control*, Las Vegas, NV, 232-237, 2002.
52. **Y. Halevi**, "On Two Projection Related Properties of the  $L_2$  Optimal Reduced Order Model", *41st IEEE Conference on Decision and Control*, Las Vegas, NV, 2919-2924, 2002.
53. A. Bondarenko, **Y. Halevi** and M. Shpitalni, "Iterative Extended Kalman Filter for Systems with Non-Additive Measurement Noise", *The 29th Israel Conference on Mechanical Engineering*, Haifa, 10p, 2003.
54. **Y. Halevi**, I. Bucher and R. Kenigsbuch, " Model Updating – A Combined Reference Basis – Sensitivity Method", *The 29th Israel Conference on Mechanical Engineering*, Haifa, 11p, 2003.
55. **Y. Halevi** and C. Wagner-Nachshoni, "Tracking Control of Flexible Structures with Non-Uniform Rods", *The 29th Israel Conference on Mechanical Engineering*, Haifa, 10p, 2003.
56. A. Shapiro, S. Shoval, M.Zacksenhouse, **Y. Halevi**, M. Green, D. Korpas, R. Baram, O. Ben-Aharon, N. Gebert, Y. Or, T. Shahar, U. Rabin and G. Yosef, "Design and Development of Mobile Robots for the RoboCup Games", *The 29th Israel Conference on Mechanical Engineering*, Haifa, 11p, 2003.
57. **Y. Halevi** and C. Wagner-Nachshoni, "Feedback Control of Flexible Structures with Non-Uniform Rods", *American Control Conference*, Denver, CO, 2646-2651, 2003.
58. P.A. Tarazaga, **Y. Halevi** and D.J. Inman, "Model Updating with the Use of Principal Submatrices", *International Modal Analysis Conference*, Detroit, MI, 12p, 2004.
59. **Y. Halevi**, "Can Any Reduced Order Model Be Obtained By Projection ?", *American Control Conference*, Boston, MA, 113-118, 2004.
60. **Y. Halevi** and U. Shaked, "Robust Model Reduction", *American Control Conference*, Boston, MA, 96-101, 2004.
61. A. Bondarenko, **Y. Halevi** and M. Shpitalni, " Object Identification and Tracking via Noise Updated Iterative Extended Kalman Filter", *7th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Manchester, UK, 7p, 2004.
62. C. Wagner-Nachshoni and **Y. Halevi**, "Control of Two-Link Flexible Structures", *7th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Manchester, UK, 7p, 2004.
63. A. Bondarenko, **Y. Halevi** and M. Shpitalni, "Object Identification and Tracking Via Noise Updated Iterative Extended Kalman Filter", *The 2004 Israel-Italy Bi-National Conference On Measurements Design and Reverse Engineering*, Haifa, 2004.
64. **Y. Halevi**, P.A. Tarazaga, and D.J. Inman, "Connectivity Constrained Reference Basis Model Updating", *ISMA*, Leuven, Belgium, 1847-1857, 2004.
65. **Y. Halevi** and C. Wagner-Nachshoni, "Laplace Transfer Function Modeling of Multi-Link Flexible Structures", *ISMA*, Leuven, Belgium, 3573-3587, 2004.
66. **Y. Halevi**, C. A. Morales, and D. J. Inman, "CEO - A Combined Expansion and Orthogonalization method", *ISMA*, Leuven, Belgium, 1833-1846, 2004.

67. C. Wagner-Nachshoni and **Y. Halevi**, "Control of Multi-Link Flexible Structures", *IEEE Mediterranean Conference on Control and Automation*, Limassol, Cyprus, 507-512, 2005.
68. **Y. Halevi**, "Geometrical Properties of the  $L_2$  Order Reduction Projection", *IEEE Mediterranean Conference on Control and Automation*, Limassol, Cyprus, 531-536, 2005.
69. P.A. Tarazaga, **Y. Halevi** and D.J. Inman, "Model Updating Using a Quadratic Form", *ASME Design Engineering Technical Conferences*, Long Beach, CA, 2005.
70. M. Weiss-Cohen and **Y. Halevi**, "Knowledge Retrieval for Automatic Solving of Jigsaw Puzzles", *Int. Conf. on Computational Intelligence for Modelling, Control and Automation, and Int. Conf. on Intelligent Agents, Web Technologies and Internet Commerce (IEEE CIMCA-IAWTIC)*, Vienna, Austria, 2005
71. I. Peled and **Y. Halevi**, "Transfer Function Modeling of a Flexible Gear Train", *8th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Torino, Italy, 7p, 2006.
72. P.A. Tarazaga, **Y. Halevi** and D.J. Inman, "The QCM Approach for Model Updating from Noisy Data", *ISMA*, Leuven, Belgium, 2006.
73. I. Peled and **Y. Halevi**, "Transfer Function Modeling and Control of a Flexible Gear Train", *ISMA*, Leuven, Belgium, 2006.
74. I. Peled and **Y. Halevi**, "Robust absolute vibration suppression controller", *9th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Haifa, Israel, 2008.
75. L. Sirota, I. Peled and **Y. Halevi**, "Vibration suppression in strings using the infinite dimension Laplace domain approach", *9th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Haifa, Israel, 2008.
76. I. Peled, W.J.O'Connor and **Y. Halevi**, "Catching the wave – on the relationship between wave based control, absolute vibration suppression and input shaping", *ISMA*, Leuven, Belgium, 2008.
77. M. Weiss-Cohen, A. Bondarenko, **Y. Halevi**, "Reconstruction of 3D Models from Measurements Obtained by a Moving Sensor" *CAD'09*, June, 2009 Reno, Nevada, USA
78. **Y. Halevi** and I. Peled, "Absolute Vibration Suppression (AVS) Control – Modeling, Implementation and Robustness", *International Conference on Structural Engineering Dynamics (ICEDyn)*, Ericeira, Portugal, 2009.
79. I. Peled and **Y. Halevi**, "On the Robustness of AVS Controller to Sensor- Actuator Noncollocation vibration suppression controller", *IEEE Mediterranean Conference on Control and Automation*, Thessaloniki, Greece, 2009.
80. **Y. Halevi**, "Can Any Reduced Order Model Be Obtained Via Projection?", *Linear and Numerical Linear Algebra: Theory, Methods, and Applications (NIU LA '09)*, Northern Illinois University, DeKalb, IL, USA, 2009.
81. **Y. Halevi**, "Connectivity Constrained Reference Basis Model Updating", *Linear and Numerical Linear Algebra: Theory, Methods, and Applications (NIU LA '09)*, Northern Illinois University, DeKalb, IL, USA, 2009.
82. **Y. Halevi**, D. Vilensky and B.N. Datta, "Model Updating via Manifold Distance Minimization", *ISMA*, Leuven, Belgium, 2010.
83. **Y. Halevi**, E. Carpanzano and G. Montalbano, "Minimum Energy Control of Redundant Cartesian Manipulators", *11th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Nantes, France, 615-622, 2012.
84. L. Sirota and **Y. Halevi**, "Modeling and Control of Flexible Second Order Systems with Damped Boundaries", *11th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Nantes, France, 607-614, 2012.
85. L. Sirota and **Y. Halevi**, "Travelling and standing waves in structures with damped boundaries", *ISMA*, Leuven, Belgium, 2012.
86. **Y. Halevi**, "Reference Basis Model Updating – Following the Baruch and Bar-Itzhack Approach", *BarSym*, Haifa, Israel, 2012.
87. **Y. Halevi**, "Structural Health Monitoring via Connectivity Constrained Reference Basis Model Updating", *ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, Utah, 2013.
88. L. Sirota and **Y. Halevi**, "Wave Based Velocity and Position Control of Membranes", *54th Israeli Annual Conference on Aerospace Sciences*, Tel Aviv, Israel, 2014.

89. L. Sirota and **Y. Halevi**, "Wave Based Motion Control of Membranes", *American Control Conference*, Portland, OR, 2729-2734, 2014.
90. L. Alpert and **Y. Halevi**, "Minimum Energy Control of Redundant Manipulators with Axes Coupling And Compounded Path", *12th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA)*, Copenhagen, Denmark, 2014.
91. L. Sirota and **Y. Halevi**, " A Combined Modal Wave-Based Control of Membranes Using Irrational Transfer Functions", *ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Newport, Rhode Island, 2014.
92. L. Sirota and **Y. Halevi**, "Fractional Order Control of Flexible Structures Governed by the Damped Wave Equation", *American Control Conference*, Chicago, IL, 2015.
93. L. Sirota, **Y. Halevi** and M.Krstic, "Fractional Order On the Relationship between the Absolute Vibration Suppression and Back-Stepping Methods in Control of the Wave Equation with Possibly Unstable Boundary Conditions", *American Control Conference*, Boston, MA, 2016.
94. U. Nusbaum, **Y. Halevi** and M. Weiss-Cohen, " Optimization and Guidance of Redundant Systems", Israeli Conference of Mechanical Engineering, Haifa, 2016.
95. N. Cavalagli,, F. Ubertini, **Y. Halevi** and L. Materazzi, "Recent Advances in Sloshing Absorbers for the Mitigation of Seismic Structural Response", Israeli Conference of Mechanical Engineering, Haifa, 2016.
96. **Y. Halevi**, "Absolute Vibration Suppression (AVS) Control of Flexible Structures", Israeli Conference of Mechanical Engineering, Haifa, 2016.
97. **Y. Halevi**, "Fractional order absolute vibration suppression (AVS) controllers", 2017 SPIE Smart Structures and Materials, Portland, OR, 2017
98. U. Nusbaum, **Y. Halevi** and M. Weiss-Cohen, " Absolute Vibration Suppression (AVS) Control For Fractional Order Systems", ASME IMECE, Pittsburgh, PA, 2018.
99. U. Nusbaum, **Y. Halevi** and M. Weiss-Cohen, " Minimum Energy Control Of Redundant Systems Using Evolutionary Bi-Level Optimization", ASME IMECE, Pittsburgh, PA, 2018.

#### **Seminars Presented (partial list)**

- "Model Order Reduction", Florida Atlantic University, Boca Raton, FL, August 1990.
- "Control of Time-Delay Systems", University of Michigan, Ann Arbor, MI, February 1993.
- "Model Order Reduction of Dynamic Systems", Ohio State University, Columbus, OH, March 1993.
- "Model Updating of Vibrating Systems Using Generalized Weighting Functions", Sophia University, Tokyo, Japan, September 1996.
- "Model Updating in Structural Dynamics", University of Maryland Baltimore County, Baltimore, MD, December 1999.
- "Model Updating Using Generalized Reference Basis", University of Maryland Baltimore County, Baltimore, MD, December 2000.
- "Model Updating Using Generalized Reference Basis", Virginia Tech, Blacksburg, VA, December 2000.
- "Control of Flexible Structures Governed by the Wave Equation", Ben Gurion University, Beer Sheva, Israel, January 2002.
- "Control of Flexible Structures", University of Massachusetts, Amherst, MA, December 2002.
- "On Model Order Reduction via Projection", Tel Aviv University, Tel Aviv, Israel, March 2003.
- "Model Updating: A combined Reference Basis – Sensitivity Method", Virginia Tech, Blacksburg, VA, July 2003.
- "On Control of Flexible Structures", Virginia Tech, Blacksburg, VA, September 2003.
- "On Control of Flexible Structures", Penn State, State College, PA, January 2004.
- "On Expansion and Model Updating of Flexible Structures", University of French Comte, Besancon, France, September 2004.
- "Can Any Reduced Order Model Be Obtained by Projection?", Ben Gurion University, Beer Sheva, Israel, June 2007.

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- "Model Order Reduction", Northern Illinois University, Dekalb, IL, March 2009.
- "Absolute Vibration Suppression (AVS) – A Wave Based Control Method", Perugia, Italy, September 2015