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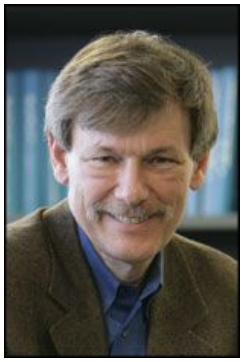
Return to Faculty Directory

Bar-Cohen, Avram



Distinguished University Professor
Department of Mechanical Engineering
2106B Glenn L. Martin Hall, Building 088
University of Maryland
College Park, MD 20742
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Research Interests

Development and application of thermal science and engineering to silicon and compound semiconductor nanoelectronic and optoelectronic components

Thermal design and optimization

Ebullient heat transfer

Two-phase flow in miniature channels

Thermoelectric phenomena

Conduction in anisotropic materials

Polymer heat exchangers

Education

Ph.D., Massachusetts Institute of Technology, 1971

Honors and Awards

1983 ASME Fellow

1992 ASME Dedicated Service Award "for his work in Professional Development"

1994 ASME Edwin F. Church Medal, "In recognition of contributions to engineering education, continuing education and professional development on both the national and international levels"

1993 IEEE Fellow

1994 ASME Electronic and Electrical Packaging Division, Outstanding Contribution Award "For outstanding contributions to application of Heat Transfer Science to Electronic Packaging"

1994-1997 ASME Distinguished Lecturer

1997 IEEE/Semi-Therm THERMI Significant Contributor Award "For his many contributions to the thermal management of semiconductors"

1998 ASME/IEEE ITHERM Memorial Award "For significant contributions to the field of thermal and thermomechanical engineering for electronics packaging"

1999 ASME Heat Transfer Memorial Award "For work contributing to a greater understanding of immersion cooling, pool boiling of dielectric fluids, and other aspects of electronics cooling"

1999 ASME Curriculum Innovation Award, Board on Engineering Education, for "The Classroom of the Future: An Internet-Delivered National Course on Thermal Management of Electronics," (with S. Bhavnani and Y. Joshi)

2000 ASME Worcester Reed Warner Medal, "..for outstanding contributions to the literature in the area of heat transfer, including more than 180 technical papers, and pioneering research and

experimentation in electronic cooling and natural convection"

2000 IEEE Distinguished Lecturer

2002 IEEE CPMT Society, Outstanding Sustained Technical Contributions Award, "for contributions to thermal design, modeling, and analysis and for original research on ebullient and liquid-phase cooling"

2007 ASME InterPack Achievement Award "for his long term and continued contributions in the field of Electronic and Photonic packaging"

2007 ASME Honorary Member "for development of the scientific foundation for thermal management of electronic components and systems... and for seminal contributions and leadership in research, practice and education in the thermal management of micro and nanoelectronic systems"

2008 Luikov Medal, International Center for Heat and Mass Transfer "for outstanding contributions to the science and art of Heat and Mass Transfer and for activities in international scientific cooperation in conjunction with ICHMT programs"

Professional Memberships and Service

ASME Activities

President, Assembly for International Heat Transfer Conferences(2010-2014)

Member, Executive Committee, Mechanical Engineering Department Heads Committee (2004-2008)

Member and Vice President, Assembly for International Heat Transfer Conferences (2002-2010)

Member, Steering Committee, Nanotechnology Institute, (2001-2004)

Vice-President for Research, Board on Research and Technology Development (1998-2001)

Chair of the US Scientific Committee of the International Heat Transfer Assembly (1998-2002)

Member, Executive Committee, Board on Research and Technology Development (1995-1998)

Chair (1981-1985), Member (1986-) K-16 Committee for Heat Transfer in Electronic Equipment

Chair, BRTD Research Committee on Packaging and Physical Design of Electronic Equipment (1988-1990)

Secretary, BRTD Technical Opportunities and Planning Committee, (1989-1992)

Member, ASME Board on Professional Development (1989-1995)

Associate Editor, ASME Transactions Journal of Mechanical Design, (1978-1982)

Associate Editor, ASME Applied Mechanics Reviews, (1985-1991)

IEEE Activities

Member, IEEE/CPMT Board of Governors (2012-2015)

Editor-in-Chief of the IEEE/CPMT Transactions on Components and Packaging Technologies (1995-2009)

Member, IEEE/CPMT Board of Governors (1995-2005)

Vice-chairman of the IEEE/CHMT TC-9 Committee on Thermal Control (1990-1993)

Selected Publications

2012

Bar-Cohen, A. and P. Wang, 2012, "Thermal Management of On-Chip Hot Spots," *ASME Journal of Heat Transfer*, DOI 10.1115/1.4005708

Cevallos, J.G., A.E. Bergles, A. Bar-Cohen, P. Rodgers, and S.K. Gupta, 2012, "Polymer heat exchangers - History, opportunities, and challenges," *Heat Transfer Engineering*, DOI:10.1080/01457632.2012.663654; available on-line 3/9/2012

2011

Rahim, E., R. Revellin, J.R. Thome, A. Bar-Cohen, 2011, "Characterization and Prediction of Two Phase Flow Regimes in Miniature Tubes," *International Journal of Multiphase Flow*, Volume 37, Issue 1, Pages 12-23

Wang, P. and A. Bar-Cohen, 2011, "Self Cooling on Germanium Chip," *IEEE Transactions on Components and Packaging Technologies*, Vol.1, No.5, pp.705-713

Arik, M., Kosar, A., Bostanci, H. and Bar-Cohen, A., 2011, "Pool Boiling Critical Heat Flux in Dielectric Liquids and Nano Fluids," *Advances in Heat Transfer* - Vol 43, Cho and Green, Eds, Elsevier

Bar-Cohen, A., Sheehan, J., Rahim, E., 2011, "Two-Phase Thermal Transport in Microgap Channels - Theory, Experimental Results, and Predictive Relations," *Microgravity - Science and Technology*, September 2011, pp. 1-15, DOI: 10.1007/s12217-011-9284-3

Khuu, V., M. Osterman, A. Bar-Cohen, and M. Pecht, 2011, "Considerations in the use of Thermal Flash Method for Thermal Measurements of Thermal Interface Materials," *IEEE CPMT Transactions*, Vol 1, No. 7, pp 1015-1028

Song, Bong-Min, B. Han, A. Bar-Cohen, M. Arik, R. Sharma, S. Weaver, 2011, "Life prediction of LED-based recess downlight cooled by synthetic jet," *Microelectronics Reliability, In Press*, available on-line, May 2011

Cevallos, J., S.K. Gupta, A. Bar-Cohen, 2011, "Incorporating moldability considerations during the design of thermally enhanced polymer heat exchangers," *ASME Journal of Mechanical Design*, 133(8):081009, available on-line, August 2011

Kim, K.J., Avram Bar-Cohen, and Bongtae Han, 2011, "Thermal-Structural Modeling of Polymer Bragg Grating Waveguides Illuminated by a Light Emitting Diode," *Applied Optics*, accepted for publication, posted on-line November 2011, Doc. ID 153737

2010

Kim, D.W., E. Rahim, A. Bar-Cohen, B.T. Han, 2010, "Direct Submount Cooling of High Power LED's," *IEEE Transactions on Components and Packaging Technologies*, Volume: 33 Issue:4, pp 698 - 712, DOI: 10.1109/TCAPT.2010.2040618 July 2009

Jang, C., B.M. Song, B. Han, A. Bar-Cohen, 2010, "Coupled Thermal and Thermo-mechanical Design Assessment of High Power Light Emitting Diode," *IEEE CPT Transactions*, Vol 33, Issue 4, pp 688 - 697, DOI: 10.1109/TCAPT.2010.2044413 January 2010

Sher, I., B. Han, and A. Bar-Cohen, 2010, "Modified Coupled-Mode Model for Thermally Chirped Polymer Bragg Gratings," *Applied Optics*, Vol 49, #11, pp 2066-2071.

Song, B.M. B.Han, A. Bar-Cohen, R. Sharma, M. Arik, 2010,"Hierarchical Life Prediction Model for Actively Cooled LED-Based Luminaire," Vol 33, Issue 4, pp 728 - 737, DOI: 10.1109/TCAPT.2010.2051034, May 2010

Luckow, P., A. Bar-Cohen, P. Rodgers, J. Cevallos, 2010, "Energy Efficient Polymers For Gas-Liquid Heat Exchangers," *ASME JERT*, Vol.132, Issue 2, DOI: 10.1115/1.4001568

Arik, M. and A. Bar-Cohen, 2010, Pool boiling of Perfluorocarbon Mixtures on Silicon Surfaces, *Int. J. Heat Mass Transfer* (2010), doi:10.1016/j.ijheatmasstransfer.2010.06.034

Litvinovitch, V., P. Wang, and A. Bar-Cohen, 2010 "Superlattice Tec Hot Spot Cooling," *IEEE Transactions on Components and Packaging Technologies*, Volume: 33, Issue: 1, pp 229-239, DOI: 10.1109/TCAPT.2009.2032297

Kabov, O.A., D.V. Zaitsev, V.V. Cheverda, and A. Bar-Cohen, 2010, "Evaporation and flow dynamics of thin, shear-driven liquid films in microgap channels," *Experimental Thermal and Fluid Science*, Vol 35, Issue 5, pp 825-831

2009

Geisler, K.J. L., and A. Bar-Cohen, 2009, "Confinement Effects on Nucleate Boiling and Critical Heat Flux in Buoyancy-Driven Microchannels," *Int. J. Heat Mass Transfer* Vol 52, pp 2427-2436; doi:10.1016/j.ijheatmasstransfer.2009.02.001

Bar-Cohen, A., E. Rahim, 2009, "Modeling and Prediction of Two-Phase Microgap Channel Heat Transfer Characteristics," *Heat Transfer Engineering*, Volume 30, Issue 8, pp 601-625

Wang, P., B. Yang, and A. Bar-Cohen, 2009, "Mini-Contact Enhanced Thermoelectric Coolers For On-Chip Hot Spot Cooling," *Heat Transfer Engineering*, Vol 30, Issue 9, pp 736-743

Bar-Cohen, A. and P. Wang, 2009, "On Chip Hot Spot Remediation with Miniaturized Thermoelectric Coolers", *Microgravity Science and Technology*, Volume 21, Issue 1, pp 351-362

Khuu, K., M. Osterman, A. Bar-Cohen, and M. Pecht, 2009, "Effects of Temperature Cycling and Elevated Temperature/Humidity on the Thermal Performance of Thermal Interface Materials," *IEEE Transactions on Device and Materials Reliability*, Vol 9, Number 3, pp 379-391

Geisler, K.J.L. and A. Bar-Cohen, 2009, "Passive Immersion Cooling of 3-D Stacked Dies," *IEEE Transactions on Components and Packaging Technologies*, Vol 32 (3), pp. 557-565; doi: 10.1109/TCAPT.2008.2006186

Luckow, P., A. Bar-Cohen, P. Rodgers, 2009, "Minimum Mass Polymer Seawater Heat Exchanger for LNG Applications," *ASME TSEA*, Vol 1, Issue 3, doi:10.1115/1.4001239.

2007

Bar-Cohen, A., Han, B., and Kim, K.J., 2007, "Thermo-Optic Effects in Polymer Bragg Gratings," Chapter 2, in *Micro- and Optoelectronic Materials and Structures: Physics, Mechanics, Design, Reliability and Packaging*, Y.C. Lee and E. Suhir, Editors, Springer, New York, pp. 65-111.

2006

Bar-Cohen, A., Kraus, A.D., and Geisler, K., 2006, "Thermal Analysis and Design of Electronic Systems," in *RF and Microwave Handbook*, M. Golio, Editor, CRC Press, Boca Raton, Florida.

2003

Arik, M. and Bar-Cohen, A., 2003, "Effusivity-Based Correlation of Surface Property Effects in Pool Boiling CHF of Dielectric Liquids," *International Journal of Heat and Mass Transfer*, Vol. 46, pp 3755-3764.

Afgan, N., Carvalho, M. Prstic, S., Bar-Cohen, A., 2003, "Sustainability Assessment of Aluminum Heat Sink Design," *Heat Transfer Engineering*, 24 (4), pp 39-48.

Iyengar, M., and Bar-Cohen, A., 2003, "Least-Energy Optimization of Air-Cooled Heat Sinks for Sustainable Development," *IEEE CPT Transactions*, Vol. 26, No. 1, pp 16-25.

Narasimhan, S., Bar-Cohen, A., Nair, R., 2003, "Thermal Compact Modeling of Parallel Plate Heat Sinks," Vol. 26, Number 1, *IEEE CPT Transactions*, pp 136-146.

Narsimhan, S., Bar-Cohen, A., Nair, R., 2003, "Flow and Pressure Field Characteristics in the Porous Block Compact Modeling of Parallel Plate Heat Sinks," *IEEE CPT Transactions*, Vol. 26, No. 1, pp 147-157.

Bar-Cohen, A. , Iyengar, M, and Kraus, A.D., 2003, "Design of Optimum Plate Fin Natural Convection Heat Sinks," *ASME Transactions – Journal of Electronic Packaging,* Vol. 125, No. 2, pp 208-216.

2002

Cardozo, R., Durfee, W., Ardichvili, A., Adams, C., Erdman, A., Hoey, M., Iaizzo, P., Mallick, D., Bar-Cohen, A., Beachy, R., Johnson, A., 2002, "Experiential Education In New Product Design and Business Development," accepted for publication, *Journal of Product Innovation Management*, Vol. 19, pp 4-17.

Yazawa, K., Solbrekken, G., and Bar-Cohen, A., 2002, "Modeling and Analysis of Heat Driven Forced Convection Cooling," *Thermal Science & Engineering* Vol. 10, No. 5, pp 29-36, Heat Transfer Society of Japan.

Bar-Cohen, A. and Iyengar, M., 2002, "Design and Optimization of Air-cooled Heat Sinks for Sustainable Development," I*EEE CPT Transactions*, Vol. 25, No. 4, pp 584-591.

2000

Bar-Cohen, A., Celata, G.P., Klausner, J., Fujita, Y., Editors, 2000, "Boiling 2000: Phenomena and Emerging Applications," Vol. 1 & 2, (*Proceedings UEF Conference, Anchorage, Alaska, May 2000*), Begell House, NY, 2000.

Momoki, S., A. Bar-Cohen, and A.E. Bergles, 2000, "Estimation of Major Correlations for Frictional Pressure Drop in Gas-Liquid Two-Phase Flow in Horizontal Pipes Using Predicted Flow Regime Information," *Multiphase Science and Technology*, Vol. 12, Nos. 3&4, pp 161-175.

1999

Bar-Cohen, A. and Kraus, A.D., Editors, 1999, *Wiley Series in Thermal Management of Microelectronic and Electronic Systems: Incropera, F.P.*, "Liquid Cooling of Electronic Devices by Single-Phase Convection," John Wiley and Sons, Inc., New York.

1996

Afgan, N., da Graca Carvalho, M., Bar-Cohen, A., Butterworth, D., and Roetzel, W., (editors), 1996, "New Developments in Heat Exchangers," Gordon and Breach Publishers, Australia.

1995

Kraus, A. D. and Bar-Cohen, A. 1995, *Design and Analysis of Heat Sinks*, John Wiley and Sons, Inc., New York, (2nd printing 1997).

Related News

Bar-Cohen Named President of IEEE Electronic Packaging Society
Professor Bar-Cohen began serving in this role January 1. January 3, 2018

University of Maryland Sponsors ITHERM 2017 Conference
Professor Michael Ohadi is serving as General Chair of the conference organizing committee. May 30, 2017

Gupta Named ASME Honorary Member
Distinguished University Professor Ashwani Gupta has been named a 2016 Honorary Member of ASME. June 29, 2016

UMD Students Win Poster Session at NASA's Thermal and Fluids Analysis Workshop
Graduate students Allison Porter (Aerospace Engineering) and David Squiller (Mechanical Engineering) placed second and third at 2015 NASA TFAW poster session. August 13, 2015

Bar-Cohen Featured in Applied Mechanics Reviews Podcast
Mechanical Engineering Professor Avram Bar-Cohen was interviewed by Applied Mechanics Review for ASME podcast. May 29, 2014

Caleb Holloway Receives L-3 Communications Graduate Fellowship
Mechanical Engineering Graduate Student Caleb Holloway receives L-3 fellowship for 2013-2014. December 9, 2013

Bar-Cohen Receives 2014 IEEE Components, Packaging and Manufacturing Technology Field Award
Mechanical Engineering professor recognized for pioneering contributions to thermal packaging of electronic components. November 18, 2013

Bar-Cohen to Receive ASME 75th Anniversary Medal
Award recognizes professor's service to heat transfer community. July 1, 2013

"Embedded Cooling" of Next-Generation Power Electronics
UMD Research Team wins $2.1 million contract from DARPA to develop "embedded cooling" technology May 24, 2013

Srivastava & Bar-Cohen Deliver Tutorial at SEMI-THERM29
Srivastava & Bar-Cohen teach attendees about microfluidic thermal management. March 22, 2013

Shi and Srivastava win 2012 ISVLSI Best Paper Award
Bing Shi, an ECE graduate student, recieved accolades for her paper on hybrid and micro-fluidic cooling systems. September 14, 2012

Bar-Cohen, Wang Research Paper Top 10 Downloaded at ASME Journal of Heat Transfer
"Thermal Management of On-Chip Hot Spots" among top 10 downloaded research papers in April, May. June 21, 2012

New 3D-Printed Plastic Heat Exchanger Shows Complex Geometries Are Possible from Additive Manufacturing
Clark School engineers work with Stratasys to utilize fused deposition modeling technology in new application. January 23, 2012

Bar-Cohen Elected to IEEE CMPT Board of Governors
Former Mechanical Engineering Department Chair will serve 3-year term as Member-at-Large January 10, 2012

2011 InterPACK Conference Dedicated to Avi Bar-Cohen
Former ME Chair honored with dedication at ASME technical conference. June 16, 2011

Avram Bar-Cohen to Step Down as ME Chair
After nine years, Professor Bar-Cohen resigns as chair of the department. August 12, 2010

Hugh Bruck Appointed Director of Graduate Studies
ME professor to head graduate studies effective July 1. June 10, 2010

Mechanical Engineering Graduate Student Receives Top Awards at the National Society of Black Engineers Convention
Sophoria Westmoreland recognized by NSBE for her research and professional achievements. April 21, 2010

Mechanical Engineering Professor to be Inducted into the National Academy of Engineers
Dr. Ali Mosleh chosen to sit among engineerng elite. April 5, 2010

PI Holds 1st Annual Research Workshop
ME delegation travels to Abu Dhabi to promote research collaborations. February 17, 2010

Wang Receives ASME Award
Post-doc recognized for his work on the Journal of Heat Transfer. January 13, 2010

Avram Bar-Cohen Announced Recipient of Prestigious Luikov Medal
ME department chair recognized by ICHMT for contributions to the field of heat transfer and thermophysics. October 27, 2009

Great Year for Terps Racing: Baja SAE
Team places in their year-end competitions. September 1, 2009

ME Department Welcomes New Grad Students
Students benefit from graduate orientation. September 1, 2009

Great Year for Terps Racing: Formula SAE
Team places in their year-end competitions. August 12, 2009

Staff Member Recognized for 20 Years of Service
Lita Brown reflects on her 20+ years with ME department. July 31, 2009

ME Staff Member Receives Award for 20 Years of Service
Juanita Irvin reflects back on 20 years with the university. June 30, 2009

Ashwani K. Gupta Appointed Distinguished University Professor
Designation is the highest academic honor bestowed by the University of Maryland. February 1, 2008

Energy Education and Research Collaboration Conducts First Workshop
Maryland faculty and Petroleum Institute review cooperation success of past year. February 1, 2008

Salzberg Family Supports Scholarships
Fund assists mechanical engineering students, aids *Great Expectations* campaign. January 22, 2008

Bar-Cohen Unanimously Elected Honorary Member of ASME
Distinguished membership recognizes lifetime service to engineering. August 6, 2007

Dieters Establish Undergrad Scholarship
Former dean honors daughter, aids campaign with gift of $200,000. May 31, 2007

Mechanical Engineering Recognizes Faculty Accomplishments
Edward B. Magrab honored at reception recognizing distinguished service to campus and department. May 16, 2007

Cooperation with Korean University Adds to International Exchange
Pusan National University to share Ph.D. research knowledge, faculty and students. April 26, 2007

Research Review Day Highlights Mechanical Engineering Research
Lecturers, graduate students showcase Maryland's innovation in energy conservation, biofluidics & reliability. April 3, 2007

ME Faculty Honored at Research Leaders Luncheon
Nine ME Faculty honored on November 14. December 15, 2006

CALCE-Hanyang University Cooperation Established
In June a cooperative relationship between CALCE and Hanyang University in Korea was officially sanctioned by the Korean Government. July 15, 2006

ME Graduate Students Awarded
Mohammad Pour-gol-mohamad & Emil Rahim Recognized. June 15, 2006

Michael Pecht to Receive 2006 Distinguished International Service Award
Congratulations to Professor Pecht for this outstanding recognition for the University and Department. May 15, 2006

Mechanical Engineering Honors Prof. James Wallace & Faculty
Mechanical Engineering faculty were honored at the Faculty Recognition Event and Dinner on Friday, May 12. May 15, 2006

Agreement Established with Abu Dhabi Petroleum Institute
Cooperation seeks to enhance collaborative educational and research activities in energy sciences. May 2, 2006

ME Faculty Briefs
Chair and DUP of Mechanical Engineering Avram Bar-Cohen and Professor Bala Balachandran in the spotlight. February 15, 2006

ME Faculty Collaborate with Korean Colleagues
Cooperation between Maryland and Hanyang develops faculty expertise. February 7, 2006

First Hanyang University - UMD Workshop Held in Seoul, Korea
The first international workshop held at Hanyang University in Seoul, Korea on January 13, 2006. January 15, 2006

Mosleh Awarded Nicole Jurie Kim Eminent Professorship
Ali Mosleh has been awarded the Nicole Jurie Kim Eminent Professorship in the A.J. Clark School of Engineering effective August 23, 2005. August 23, 2005

Bar-Cohen Named Distinguished University Professor
Awards to be given at a convocation ceremony in the University's Memorial Chapel on September 21, at 3 p.m. July 15, 2005

ME Ph.D. Student, Chair Attend Exchange Conference in Russia
Bar-Cohen and Henry were among five pairings of American professors and their students sponsored by the NSF. June 15, 2005

Maryland Nanotechnology Education, Research Ranked #1 in Trade Magazine
UMD ranks first in nanotechnology research and education according to the May/June 2005 issue of Small Times Magazine. May 15, 2005

Maryland, U.S. Army Sign Test Center Agreement
Educational Partnership to Enhance MCART and Maryland Student Experience. April 15, 2005

MECHANICAL ENGINEERING GRADUATE PROGRAM RANKINGS RISE IN 2005
U.S. News & World Report "America's Best Graduate Schools 2006" Releases Favorable 2005 Ranking Statistics. April 15, 2005

Hugh Bruck Awarded Fulbright Scholarship at Tel Aviv University
Associate Professor Hugh A. Bruck was granted a Fulbright Scholar award in the 2005-2006 academic year. March 15, 2005

Mechanical Engineering at Maryland Hosts Tsunami Science Forum
Forum Part of Greater Campus Tsunami Relief Day February 10, 2005

Campus Honors Prof. David Holloway
Event honoring David Holloway was held the evening of October 30. November 15, 2004

Bar-Cohen Delivers Southwest Mechanics Lecture
Professor and Chair of Mechanical Engineering Avram Bar-Cohen, is selected to participate in the prestigious Southwest Mechanics Lecture Series (SWMLS). October 15, 2004

Avanced "Combined Heat and Power" System Demo and Dedication at the University of Maryland
The CEEE at the University of Maryland demonstrated an advanced combined heat and power (CHP) system on September 9, 2004. September 15, 2004

Mechanical Engineering Undergraduate Program Ranks 23rd in USNWR Release
U.S. News & World Report "America's Best Colleges 2005" Releases Favorable 2004 Ranking Statistics. August 15, 2004

OUTSTANDING SPRING FACULTY AWARDS AND ACCOMPLISHMENTS
Numerous outstanding faculty awards and accomplishments in the Department of ME announced. April 15, 2004

MECHANICAL ENGINEERING GRADUATE PROGRAM RANKS 24TH OVERALL, 15TH AMONGST PUBLIC SCHOOLS
U.S. News & World Report "America's Best Graduate Schools 2005" Releases Favorable 2004 Ranking Statistics. April 15, 2004

PROFESSOR JAE-EUNG OH VISITS CLARK SCHOOL ME DEPARTMENT
Provost from Hangyang University in Korea Visits UMD to Foster Collaboration with ME Department. February 15, 2004

Mechanical Engineering Student Awards Announced
The Department of ME is pleased to announce the winners of the Spring 2003 Student Awards. April 15, 2003

Maryland's Tau Mu Chapter hosts 82nd National Pi Tau Sigma Convention
UMD's Tau Mu Chapter hosted the 82nd National Pi Tau Sigma Convention on the weekend of February 21-23, 2003. February 15, 2003

ME Lab Presents Workshop on Thermal Packaging of High Flux Military and Commercial Electronics
This highly successful workshop's main charge was to identify the next round of emerging technologies in thermal management of high flux electronics. October 7, 2002

ME Department Co-Sponsors Biosensor Symposium
The Symposium, held at the FDA in College Park brought together local biosensor researchers for exchange of information and ideas. October 7, 2002

Avram Bar-Cohen Honored by IEEE
Dr. Bar-Cohen received the Outstanding Sustained Technical Contribution Award for his many contributions in the area of thermal management. May 23, 2002

Pi Tau Sigma Initiates New Members
Pi Tau Sigma student chapter, prepare to host the National Convention on the UMD campus in February of 2003. May 14, 2002

Industrial College of the Armed Forces Students Visit
The students were hosted by Assoc. Prof. Jeffrey Herrmann and were welcomed by Department Chairman Avram Bar-Cohen. May 1, 2002

A Celebration of Dave Anand's 10 Years as Chairman
Faculty and friends from the Department all shared memories, stories, and photo posters of Dr. Anand. February 15, 2002

University of Minnesota's Dr. Avram Bar-Cohen Named New Department Chair
Professor Avram Bar-Cohen of the University of Minnesota has been named Chairperson of the Department of Mechanical Engineering. July 2, 2001