

Prof. HANİFE TUBA OKUTUCU ÖZYURT

Personal Information

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Education Information

Doctorate, Northeastern University, Mechanical Engineering, United States Of America 2000 - 2005

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Makine Mühendisliği (YI) (Tezli), Turkey 1997 - 1999

Undergraduate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 1992 - 1997

Dissertations

Doctorate, ANALYTICAL AND EXPERIMENTAL STUDY OF TRANSIENT RADIATIVE TRANSFER IN PARTICIPATING MEDIA WITH SHORT-PULSE LASER IRRADIATION, Northeastern University, Mechanical Engineering, 2005

Postgraduate, Construction of a test set-up and experimental evaluation of refrigeration condensers, Middle East Technical University, Graduate School of Natural and Applied Sciences, Makine Mühendisliği (YI) (Tezli), 1999

Research Areas

Mechanical Engineering, Energy, Thermodynamics, Heat and Mass Transfer, Engineering and Technology

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2019 - Continues

Researcher, Sabanci University, Nanotechnology Application And Research Center, 2018 - 2019

Assistant Professor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2007 - 2013

Lecturer PhD, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 2006 - 2007

Research Assistant, Northeastern University, Graduate School Of Engineering, Mechanical And Industrial Engineering, 2000 - 2005

Research Assistant, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, 1997 - 2000

Academic and Administrative Experience

Bölüm Akademik Teşvik Değerlendirme Komisyonu Üyesi, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2017 - Continues

Anabilim Dalı Akademik Kurul Üyesi, Middle East Technical University, Graduate School of Natural and Applied Sciences,

Advising Theses

- OKUTUCU ÖZYURT H. T., Experimental based numerical investigation of microchannel condenser integrated freezers, Postgraduate, S.Dinçer(Student), 2019
- OKUTUCU ÖZYURT H. T., Isıl güneş enerjisi entegrasyonlu ısı dağıtım hatlarının ekzerji-p inch analazine dayanan yazılımının tasarımı, Postgraduate, M.Ekin(Student), 2019
- Okutucu Özyurt H. T., Sert C., Optimizing heat exchanger parameters of a Joule-Thomson cryogenic cooler to improve the cooling performance, Doctorate, M.BAKI(Student), 2018
- OKUTUCU ÖZYURT H. T., FABRICATION OF SILICON CARBIDE-ON-SILICON BASED DEVICES FOR EFFECTIVE NEAR-FIELD THERMAL RADIATION TRANSFER, Doctorate, E.BEGÜM(Student), 2018
- OKUTUCU ÖZYURT H. T., Özyurt H., Fabrication of silicon carbide-on-silicon based devices for effective near-field thermal radiation transfer, Doctorate, E.Begüm(Student), 2018
- OKUTUCU ÖZYURT H. T., SERT C., Optimizing heat exchanger parameters of a joulethomson cryogenic cooler to improve the cooling performance, Doctorate, M.Baki(Student), 2018
- Okutucu Özyurt H. T., Akgün F. N. D., Thermal effects of gate connected field-plates and surface passivation on algan/gan hems, Postgraduate, D.KARA(Student), 2018
- Okutucu Özyurt H. T., Dursunkaya Z., An experimental and numerical investigation of warpage behavior of silicon substrates at cryogenic temperatures, Postgraduate, E.CAN(Student), 2016
- OKUTUCU ÖZYURT H. T., Design, optimization and testing of micro-evaporator and micro-condenser components used in a miniature vapor compression refrigeration cycle, Doctorate, G.TÜRKAKAR(Student), 2016
- OKUTUCU ÖZYURT H. T., Experimental investigation of nanofluid behavior in microchannels, Postgraduate, E.ŞİMŞEK(Student), 2016
- OKUTUCU ÖZYURT H. T., Experimental and numerical investigation of surfactant effects on the thermal conductivity of carbon nanotube nanofluids, Postgraduate, E.DURSUNKAYA(Student), 2016
- OKUTUCU ÖZYURT H. T., Implementation of metal-based microchannel heat exchangers in a microrefrigeration cycle, and numerical and experimental investigation of surface roughness effects on flow boiling, Doctorate, R.JAFARI(Student), 2015
- OKUTUCU ÖZYURT H. T., Thermal management of fiber-coupled-diode pumped Tm:YLF laser crystal slab, Postgraduate, M.BALTACIOĞLU(Student), 2014
- OKUTUCU ÖZYURT H. T., Experimental investigation of refrigerator condensers for possible design improvements, Postgraduate, N.YİĞİT(Student), 2014
- OKUTUCU ÖZYURT H. T., Free convection heat transfer in a stratified medium: Cavity problem, Doctorate, Y.SELİM(Student), 2013
- OKUTUCU ÖZYURT H. T., Design and analysis of energy saving buildings using the software energy plus, Postgraduate, K.ÖZGEN(Student), 2012
- OKUTUCU ÖZYURT H. T., Fabrication of nanostructured samples for the investigation of near field radiation transfer, Postgraduate, Z.ARTVİN(Student), 2012
- OKUTUCU ÖZYURT H. T., ALTAN H., Experimental investigation of nanofluids using terahertz time domain spectroscopy (THz TDS), Postgraduate, C.KORAL(Student), 2012
- OKUTUCU ÖZYURT H. T., Design, fabrication, and experimental evaluation of microchannel heat sinks in CPU cooling, Postgraduate, A.KOYUNCUOĞLU(Student), 2010
- OKUTUCU ÖZYURT H. T., Design and simulation of a vapor compression refrigeration cycle for a micro refrigerator, Postgraduate, S.YILDIZ(Student), 2010
- OKUTUCU ÖZYURT H. T., Numerical simulation and analytical optimization of microchannel heat sinks, Postgraduate, G.TÜRKAKAR(Student), 2010
- OKUTUCU ÖZYURT H. T., Thermoelectric cooling of a pulsed mode 1064 nm diode pumped Nd: Yag laser, Postgraduate, Y.YÜKSEL(Student), 2010
- OKUTUCU ÖZYURT H. T., A numerical study on dependent absorption and scattering by interacting nano-sized particles,

Postgraduate, F.NAZLI(Student), 2009

Dursunkaya Z., Okutucu Özyurt H. T., Design and construction of an experimental apparatus for the interferometric measurement of micrometer level clearances, Postgraduate, M.YILDIRIM(Student), 2009

Designed Lessons

Okutucu Özyurt H. T., Micro- and Nanoscale Heat Transfer, Postgraduate, 2006 - 2007

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Optimization of Joule-Thomson cryocooler heat exchanger using one-dimensional numerical modeling**
Baki M., Okutucu-Özyurt T., SERT C.
Cryogenics, vol.104, 2019 (SCI-Expanded)
- II. **Tunable near-field radiative transfer by III-V group compound semiconductors**
Elcioglu E. B., Didari A., OKUTUCU ÖZYURT H. T., MENGÜÇ M. P.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, vol.52, no.10, 2019 (SCI-Expanded)
- III. **Near-field radiative transfer in spectrally tunable double-layer phonon-polaritonic metamaterials**
Didari A., ELCIOGLU E. B., Okutucu-Ozyurt T., Menguc M. P.
JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER, vol.212, pp.120-127, 2018 (SCI-Expanded)
- IV. **Effects of optical design modifications on thermal performance of a highly reflective HfO₂/SiO₂/TiO₂ three material coating**
OCAK M., Sert C., Okutucu-Ozyurt T.
HEAT AND MASS TRANSFER, vol.54, no.2, pp.377-384, 2018 (SCI-Expanded)
- V. **Heat transfer enhancement by silver nanowire suspensions in microchannel heat sinks**
SIMSEK E., Coskun S., OKUTUCU-OZYURT T., ÜNALAN H. E.
INTERNATIONAL JOURNAL OF THERMAL SCIENCES, vol.123, pp.1-13, 2018 (SCI-Expanded)
- VI. **Modeling and analysis of surface roughness of microchannels produced by mu-WEDM using an ANN and Taguchi method**
Jafari R., Kahya M., Oliaei S. N. B., ÜNVER H. Ö., Ozyurt T. O.
JOURNAL OF MECHANICAL SCIENCE AND TECHNOLOGY, vol.31, no.11, pp.5447-5457, 2017 (SCI-Expanded)
- VII. **Experimental investigation of surface roughness effects on the flow boiling of R134a in microchannels**
Jafari R., Okutucu Özyurt H. T., Ünver H. Ö., Bayer Ö.
EXPERIMENTAL THERMAL AND FLUID SCIENCE, vol.79, pp.222-230, 2016 (SCI-Expanded)
- VIII. **A numerical algorithm to determine straightness error, surface roughness, and waviness measured using a fiber optic interferometer**
Yildirim M., Okutucu-Ozyurt T., Dursunkaya Z.
OPTICS AND LASER TECHNOLOGY, vol.85, pp.19-29, 2016 (SCI-Expanded)
- IX. **Entropy generation analysis of a microchannel-condenser for use in a vapor compression refrigeration cycle**
Turkakar G., Okutucu-Ozyurt T., Kandlikar S. G.
INTERNATIONAL JOURNAL OF REFRIGERATION-REVUE INTERNATIONALE DU FROID, vol.70, pp.71-83, 2016 (SCI-Expanded)
- X. **Numerical simulation of flow boiling from an artificial cavity in a microchannel**
Jafari R., OKUTUCU ÖZYURT H. T.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.97, pp.270-278, 2016 (SCI-Expanded)
- XI. **3D numerical modeling of boiling in a microchannel by arbitrary Lagrangian-Eulerian (ALE) method**
Jafari R., Okutucu-Ozyurt T.

- APPLIED MATHEMATICS AND COMPUTATION, vol.272, pp.593-603, 2016 (SCI-Expanded)
- XII. **An experimental study on the dispersion stability of alumina-water nanofluids via particle size distribution and zeta potential measurements**
Elcioglu E. B., OKUTUCU ÖZYURT H. T.
HIGH TEMPERATURES-HIGH PRESSURES, vol.45, no.3, pp.239-250, 2016 (SCI-Expanded)
- XIII. **Effective ultrasonication process for better colloidal dispersion of nanofluid**
Mahbubul I. M., Saidur R., Amalina M. A., Elcioglu E. B., Okutucu-Ozyurt T.
ULTRASONICS SONOCHEMISTRY, vol.26, pp.361-369, 2015 (SCI-Expanded)
- XIV. **Entropy generation analysis and dimensional optimization of an evaporator for use in a microscale refrigeration cycle**
Turkakar G., OKUTUCU ÖZYURT H. T.
INTERNATIONAL JOURNAL OF REFRIGERATION-REVUE INTERNATIONALE DU FROID, vol.56, pp.140-153, 2015 (SCI-Expanded)
- XV. **Dimensional optimization of microchannel heat sinks with multiple heat sources**
Turkakar G., OKUTUCU ÖZYURT H. T.
INTERNATIONAL JOURNAL OF THERMAL SCIENCES, vol.62, pp.85-92, 2012 (SCI-Expanded)
- XVI. **Heat transfer and pressure drop experiments on CMOS compatible microchannel heat sinks for monolithic chip cooling applications**
Koyuncuoglu A., Jafari R., Okutucu-Ozyurt T., KÜLAH H.
INTERNATIONAL JOURNAL OF THERMAL SCIENCES, vol.56, pp.77-85, 2012 (SCI-Expanded)
- XVII. **Participating media exposed to collimated short-pulse irradiation - A Laguerre-Galerkin solution**
Okutucu T., Yener Y.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.50, pp.4352-4359, 2007 (SCI-Expanded)
- XVIII. **Transient radiative transfer in participating media with pulse-laser irradiation - an approximate Galerkin solution**
Okutucu T., Yener Y., Busnaina A. A.
JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER, vol.103, no.1, pp.118-130, 2007 (SCI-Expanded)
- XIX. **Radiative transfer in participating media with collimated short-pulse Gaussian irradiation**
Okutucu T., Yener Y.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, vol.39, no.9, pp.1976-1983, 2006 (SCI-Expanded)

Articles Published in Other Journals

- I. **Phase-field modeling of vapor bubble growth in a microchannel**
Jafari R., Okutucu-Özyurt T.
Journal of Computational Multiphase Flows, vol.7, no.3, pp.143-158, 2015 (Scopus)

Books & Book Chapters

- I. **Bölüm 6: Stability of Nanofluids: Fundamentals, State-of-the-Art, and Potential Applications**
Elçioğlu E. B., Şimşek E., Okutucu Özyurt H. T.
in: Microscale and Nanoscale Heat Transfer: Analysis, Design, and Application, Mourad Rebay, Sadık Kakaç, Renato M. Cotta, Editor, CRC, New York, Florida, pp.155-182, 2016

Refereed Congress / Symposium Publications in Proceedings

- I. **Sub-Continuum Air Conduction Measurement between Planar Structures**

Ghashami M., Bailey J., Mitchel E., Elçioğlu E. B., Didari A., Okutucu Özyurt H. T., Mengüç M. P., Park K.
Eurotherm: NMHT-VI: Nanoscale and Microscale Heat Transfer 2018, Helsinki, Finland, 2 - 07 December 2018, pp.1

- II. **Gold-in-Water Nanofluids in Microchannels: Surfactant Effect**
Şimşek E., Redmond M., Koyuncuoğlu A., Okutucu Özyurt H. T., Külâh H.
16th International Heat Transfer Conference (IHTC-16), Beijing, China, 10 - 15 August 2018, no.21973, pp.1-8
- III. **Kriyojenik bir Soğutucunun Alt Parçası Olan, Ters Akışlı, Reküperatif, Helisel Sarımlı Kılcal Boru Isı Değiştiricinin Sayısal Modelinin Oluşturulması**
MURAT B., OKUTUCU ÖZYURT H. T., SERT C.
21. Ulusal Isı Bilimi ve Tekniği Kongresi, Turkey, 13 - 16 September 2017
- IV. **Investigation of warpage behavior of single crystal silicon on a silicon Adhesive ceramic integrated structure at cryogenic temperatures**
BALOĞLU C., OKUTUCU ÖZYURT H. T., DURSUNKAYA Z.
IMAPS 12th International Conference and Exhibition on Device Packaging, Fountain Hills, United States Of America, 14 - 17 March 2016
- V. **Mikroelektronik Aygıtların Düşük Sıcaklıkta Şekil Değiştirmelerinin İncelenmesi**
EYÜP CAN B., OKUTUCU ÖZYURT H. T., DURSUNKAYA Z.
ULIBTK'15 20. Ulusal Isı Bilimi ve Tekniği Kongresi, Balıkesir, Turkey, 2 - 05 September 2015
- VI. **The Arbitrary Lagrangian-Eulerian (ALE) Modeling of a Vapor Bubble Growth in a Microtube**
Jafari R., Okutucu T.
International Conference on Numerical Analysis and Applied Mathematics (ICNAAM), Rhodes, Greece, 22 - 28 September 2014, vol.1648
- VII. **Investigation of non-quarter wave design on multilayer optical thin film coatings from a heat transfer point of view**
OCAK M., SERT C., Okutucu T. O.
45th Annual Laser Damage Symposium on Laser-Induced Damage in Optical Materials, Colorado, United States Of America, 22 - 25 September 2013, vol.8885
- VIII. **Hybrid energy harvester using piezoelectric and pyroelectric properties of PZT 5A ceramics**
Koyuncuoğlu A., Zorlu Ö., Okutucu Özyurt H. T., Külâh H.
11th International Energy Conversion Engineering Conference IECEC-11, California, United States Of America, 14 - 17 July 2013
- IX. **Flat Plate Film Cooling Performance Predictions by RANS Turbulence Models**
Inanlı S., Gorgulu I., OKUTUCU ÖZYURT H. T., UZOL O.
7th International Symposium on Turbulence Heat and Mass Transfer (THMT), Palermo, Italy, 24 - 27 September 2012, pp.1262-1271
- X. **EFFECTS OF THERMOPHYSICAL PROPERTIES AND ENTRANCE REGION ON THE DIMENSIONAL OPTIMIZATION OF MICROCHANNEL HEAT SINKS**
Turkakar G., OKUTUCU ÖZYURT H. T.
International Symposium on Thermal and Materials Nanoscience and Nanotechnology (TMNN), Antalya, Turkey, 29 May - 03 June 2011
- XI. **AN INTERFEROMETRIC TECHNIQUE FOR MEASURING MICRON LEVEL CLEARANCES FILLED WITH A LUBRICANT**
Yildirim M., DURSUNKAYA Z., Okutucu T.
STLE/ASME International Joint Tribology Conference, San-Francisco, Costa Rica, 17 - 20 October 2010, pp.167-169
- XII. **A CMOS COMPATIBLE METAL-POLYMER MICROCHANNEL HEAT SINK FOR MONOLITHIC CHIP COOLING APPLICATIONS**
Koyuncuoğlu A., Okutucu T., Külâh H.
14th International Heat Transfer Conference, Washington, Kiribati, 8 - 13 August 2010, pp.721-724
- XIII. **DEPENDENT ABSORPTION AND SCATTERING BY INTERACTING NANOPARTICLES**
Donmezer F. N., Mengüç M. P., Okutucu T.
6th International Symposium on Radiative Transfer (RADIATIVE TRANSFER), Antalya, Turkey, 13 - 19 June 2010

- XIV. **DEVELOPMENT OF AN INTERFEROMETRIC TECHNIQUE TO BE USED IN MEASURING MICRON LEVEL CLEARANCES FILLED WITH A LUBRICANT**
Yildirim M., DURSUNKAYA Z., Okutucu T.
ASME/STLE International Joint Tribology Conference, Tennessee, United States Of America, 19 - 21 October 2009, pp.151-153
- XV. **Effect of Nanoconvection due to Brownian Motion on Thermal Conductivity of Nanofluids**
Azizian M. R., AYBAR H. Ş., Okutucu T.
7th IASME/WSEAS International Conference on Heat Transfer, Thermal Engineering and Environment (HTE '09), Moscow, Russia, 20 - 22 August 2009, pp.53-55
- XVI. **Propagation of ultra-short-pulse radiation in participating media: A Laguerre-Galerkin solution**
Okutucu T., Yener Y.
ASME International Mechanical Engineering Congress and Exposition, Washington, United States Of America, 11 - 15 November 2007, pp.583-584
- XVII. **Single-phase forced convection in microchannels - A state-of-the-art review**
Yener Y., Kakac S., Avelino M., Okutucu T.
Conference of the NATO Advanced-Study-Institute on Microscale Heat Transfer, Cesme Izmir, Turkey, 18 - 30 July 2004, vol.193, pp.1-24

Supported Projects

OKUTUCU ÖZYURT H. T., JAFARI KHOUSHEH MEHR R., Project Supported by Higher Education Institutions, Nano-akışkan ısı iletkenlik ölçümleri için bir deney düzeneğinin geliştirilmesi, 2013 - 2014
Bayer Ö., Okutucu Özyurt H. T., Project Supported by Other Private Institutions, Ev Tipi Buzdolaplarında Kullanılan Kondenser Tiplerinin Isı Transferi Açısından Karakterizasyonu, 2013 - 2013

Activities in Scientific Journals

Journal Of Thermal Science, Committee Member, 2017 - Continues

Memberships / Tasks in Scientific Organizations

Türk Isı Bilimi ve Tekniği Derneği, Executive Board Member, 2014 - Continues
International Centre for Heat and Mass Transfer, Member of Science Committee, 2006 - Continues
American Society of Mechanical Engineers, Member, 2001 - Continues

Scientific Refereeing

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, December 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, December 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, December 2018
TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, December 2018
ENERGY, SCI Journal, November 2018
ENERGY, SCI Journal, November 2018
JOURNAL OF ELECTRONIC PACKAGING, SCI Journal, November 2018

ENERGY, SCI Journal, October 2018

TUBITAK Project, 1002 - Quick Support Program, Middle East Technical University, Turkey, October 2018

Energy, SCI Journal, June 2018

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2018

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2018

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2018

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Middle East Technical University, Turkey, June 2018

Metrics

Publication: 38

Citation (WoS): 376

Citation (Scopus): 282

H-Index (WoS): 12

H-Index (Scopus): 9

Awards

Okutucu Özyurt H. T., TÜBİTAK Proje Performans Ödülü (112M168), Tübitak, May 2018

Non Academic Experience

Professional Association, Middle East Technical University