

Onur TAYLAN

Research and Teaching Assistant
The University of Texas at Austin
Department of Mechanical Engineering

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EDUCATION

- PhD** THE UNIVERSITY OF TEXAS AT AUSTIN, AUSTIN, TX Expected: May 2014
Doctor of Philosophy in Mechanical Engineering
Dissertation Topic: “Synthesis Gas Production using Non-Thermal Plasma Reactors”
Current CGPA: 3.72 / 4.00
PhD Dissertation Adviser: Dr. Halil Berberoglu
- MS** MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA, TURKEY June 2010
Master of Science in Mechanical Engineering
M.S. Thesis: “Numerical Modeling and Performance Analysis of Solar-Powered Ideal Adsorption Cooling Systems”
Supervisors: Dr. Derek K. Baker and Dr. Bilgin Kaftanoglu
CGPA: 3.79 / 4.00
- BS** MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA, TURKEY June 2007
Bachelor of Science in Mechanical Engineering
Field of Study: Thermo-Fluid Sciences and Energy
CGPA: 3.20 / 4.00, ranked in top 13.5%

PUBLICATIONS

BOOK CHAPTER

1. Taylan O., Berberoglu H. (2013), “Fuel Production Using Concentrated Solar Energy” in *Applications of Solar Energy*, Editor: Rugescu R. InTech: ISBN 980-953-307-937-5.

PEER-REVIEWED ARTICLES IN ARCHIVAL JOURNALS

1. Taylan O., Berberoglu H. (2013), “Thermal Radiation Transport in a Fluidized Dry Water System”, *Journal of Quantitative Spectroscopy and Radiative Transfer*, **120**(1), pp. 104-113.
2. Taylan O., Baker D. K., Kaftanoglu B. (2012), “COP Trends for Ideal Thermal Wave Adsorption Cooling Cycles with Enhancements”, *International Journal of Refrigeration*, **35**(3), pp. 562-570.
3. Taylan O., Baker D. K., Kaftanoglu B. (2011), “Normalized Thermodynamic Model for Intermittent Energy Systems and Application to Solar-Powered Adsorption Cooling Systems”, *International Journal of Thermodynamics*, **14**(3), pp. 107-115.

PEER-REVIEWED CONFERENCE PROCEEDINGS

1. Taylan O., Berberoglu H., “Dissociation of Carbon Dioxide Using a Microhollow Cathode Discharge Reactor”, *full paper accepted to ASME IMECE 2013 (International Mechanical Engineering Congress & Exposition)*, San Diego, CA, USA, November 15-21, 2013.
2. Taylan O., Berberoglu H., “Modeling of a Microhollow Cathode Discharge Reactor for Carbon Dioxide Dissociation”, *full paper accepted to ASME IMECE 2013 (International Mechanical Engineering Congress & Exposition)*, San Diego, CA, USA, November 15-21, 2013.
3. Taylan O., Berberoglu H., “Dissociation of Carbon Dioxide Using a Non-Thermal Plasma Reactor”, *ASME Summer Heat Transfer Conference 2013*, Minneapolis, MN, USA, July 14-19, 2013.
4. Taylan O., Murphy T.E., Berberoglu H., “Light Transport Analysis of Smart Windows for Solar Energy Harvesting,” *7th International Symposium on Radiative Transfer*, Kusadasi, Turkey, June 2-8, 2013.

5. Taylan O., Berberoglu H., “Thermal Radiation Transport in a Cloud of Dry Water Particles”, *ASME Summer Heat Transfer Conference 2012*, Puerto Rico, USA, July 8-12, 2012.
6. Taylan O., Berberoglu H., “Rheological Properties of Dry Water”, *ASME IMECE 2011 (International Mechanical Engineering Congress & Exposition)*, Denver, CO, USA, November 11-17, 2011.
7. Taylan O., Baker D. K., Kaftanoglu B., “Adsorbent – Refrigerant Comparison for a Solar Powered Adsorption Cooling System using Seasonal Simulations”, *10th REHVA (the Federation of European Heating and Air Conditioning Associations) World Congress (Clima 2010)*, Antalya, Turkey, May 9-12, 2010.
8. Taylan O., Baker D. K., Kaftanoglu B., “Parametric Study and Seasonal Simulations of a Solar Powered Adsorption Cooling System”, *22nd International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS 2009)*, pp. 833-842, Foz do Iguaçu, Brazil, August 30-September 3, 2009.

SKILLS

- 6 years of experience in teaching as a teaching assistant for various courses in thermal-fluid sciences
- 3 years of experimental experience in spectrophotometry and potentiometry
- 3 years of experience in numerical analysis using MATLAB for modeling adsorption beds for cooling systems
- 2 years of experience in finite element analysis using COMSOL
- 1.5 years of experience in numerical methods using FORTRAN for solving the Radiative Transport Equation
- 6 months of experience in managing electric fields in dielectric barrier discharge plasma reactors
- 6 months of experience in radiation heat transfer through Monte Carlo method
- 6 months of experience in numerical modeling for thermo- and exergo-economic analysis of engineering systems
- 6 months of experience in performance analysis of polymer exchange membrane fuel cell

AWARDS AND HONORS

- National Science Foundation Award for ASME Heat Transfer Division Workshop (*Summer 2013*)
- Professional Development Award – Office of Graduate Studies (*Summer 2013*)
- Dean’s High Honor Certificate (*Spring 2007, Fall 2006*)
- Dean’s Honor Certificate (*Fall 2003, Spring 2004, Fall 2005, Spring 2006*)
- 1804th rank, top 0.75%, in mathematics-science branch in university entrance examination among approximately 1.5 million candidates (*June 2003*)

AREAS OF INTEREST

- Absorption / Adsorption Cooling Systems
- Building Energy Systems
- Energy Analyses / Simulations of Engineering Systems
- Engineering Economy
- Heating and Air-Conditioning Systems
- Plasma Reforming and Plasma Technologies
- Radiation Heat Transfer
- Renewable and Sustainable Energy Conversion Systems
- Solar Energy Utilization
- Sustainable Technologies
- Thermodynamics

PROFESSIONAL SERVICE

- **Member of the Professional Organizations and Committees**
 - ASME K-6 Heat Transfer in Energy Systems, Committee Member (2013 - Present)
 - American Society of Mechanical Engineers (ASME), Student Member (2010 - Present)
- **Technical Session Chair in Conferences**
 - Chair of a technical session, “Heat Transfer in Solar Energy Systems,” in ASME Summer Heat Transfer Conference, Minneapolis, MN, July 14-19, 2013.
 - Co-chair of a technical session, “Radiation in Energy Systems,” in ASME International Mechanical Congress and Exposition, Houston, TX, November 9-15, 2012.
- **Reviewer for Journals and Conferences**
 - Energies
 - Energy Conversion and Management
 - ASME International Mechanical Congress and Exposition
 - ASME Summer Heat Transfer Conference
- **Teaching Assistant** – The University of Texas at Austin
September 2010 – Present
Assisted Courses:
 - ME 139L – Heat Transfer Laboratory (*Spring 2013*)
 - ME 326 – Thermodynamics (*Fall 2010, Spring 2012*)
 - ME 343 – Thermal/Fluid Systems (*Spring 2011, Fall 2011, 2012, 2013*)*Supervised:*
 - A graduate student to install a weather station, monitor solar radiation and integrate power produced from photovoltaic solar cells and wind turbine into the electricity grid
- **Administrative Assistant / Online Administrator** – International Journal of Thermodynamics (IJOT)
September 2008 – Present
Published quarterly by the International Centre for Applied Thermodynamics, Editor-in-Chief: Dr. Yasar Demirel (University of Nebraska-Lincoln, USA)
 - Maintaining an online paper submission system
 - Managing the journal’s website
 - Preparation and maintaining of authors and keywords databases
 - Assisted the Editorial Board meeting during ECOS 2009 conference in Brazil
 - Analyses of article formatting standards for the journal’s new format
 - Preparation, distribution and analyses of “areas of expertise survey” for potential reviewers
- **Teaching Assistant** – Middle East Technical University
September 2007 – August 2010
Assisted Courses:
 - ME 200 – Mechanical Engineering Orientation (*Fall 2008 & 2009, Coordinator Assistant of Thermo-Fluid Branch in Fall 2009*)
 - ME 203 – Thermodynamics I (*Fall 2007 & 2008, Spring 2009*)
 - ME 204 – Thermodynamics II (*Spring 2008*)
 - ME 311 – Heat Transfer (*Fall 2007&2009, Coordinator Assistant in Fall 2009*)
 - ME 351 – Thermodynamics of Heat Power (*Fall 2009*)
 - ME 476 – Second Law Analysis of Engineering Systems (*Spring 2008 & 2009*)
 - ME 478 – Introduction to Solar Energy Utilization (*Spring 2008*)
 - ME 490 – Fuel Cell Fundamentals (*Fall 2008*)*Supervised:*
 - A fourth year undergraduate student to develop and transform numerical codes for cooling systems

- **Research Assistant** – Middle East Technical University
September 2007 – January 2009
 - “Solar Powered Adsorption Cooling System” funded by the Scientific and Technical Research Council of Turkey

COURSE PROJECTS

- Monte Carlo Code Development for 3-D Geometries to Calculate Heat Loss through Radiation (*Spring 2009*)
- Effects of Adsorbents as Roughness Elements to Viscous Flow in an Adsorbent Bed (*Spring 2008*)
- Design of a Self-Assembling Living Quarter (*Spring 2007*)
- Thermodynamic Model of a Gas Turbine (*Spring 2007*)
- Feasibility Study of a Firm in Commercial Yacht Tourism Sector (*Spring 2007*)
- Heating Requirement and Heater Selection of a Building (*Fall 2006*)
- Performance Analysis of Polymer Exchange Membrane (PEM) Fuel Cell and Hydrogen Storage for a Car (*Fall 2006*)
- Gearbox Design and Bearing Selection (*Spring 2006*)
- Design of Bolted and Welded Joints (*Fall 2005*)
- Design of a Telescopic Boom Mini Crane (*Fall 2005*)

COMPUTER LITERACY

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|---------------------------------|--------------|
| • .NET Languages (C, C++) | Intermediate |
| • Adobe Dreamweaver | Expert |
| • Adobe LiveCycle Designer | Expert |
| • CadKey, KeyCreator | Advanced |
| • COMSOL | Advanced |
| • Fortran | Intermediate |
| • Internet Tools | Expert |
| • Mathcad | Expert |
| • Mathematica | Advanced |
| • MATLAB | Advanced |
| • Microsoft Office Applications | Expert |
| • LaTeX | Advanced |
| • Solidworks | Intermediate |
| • TRNSYS | Advanced |

LANGUAGES

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| • Turkish | Excellent level in reading, writing and speaking (native) |
| • English | Good command in reading and writing, fluent in speaking |
| • Spanish | Beginner |
| • German | Beginner |

INTERNSHIPS

- **Turkish Aerospace Industries, Inc.** – Ankara, Turkey
August – September 2006
Design and Engineering Directorate – Product Integrity Division
Analyses of organizational structure and workflow of a multi-task company
- **ASELSAN Electronic Industries, Inc.** – Ankara, Turkey
June – July 2005
Mechanical Design Directorate – Mechanical Prototype Workshop
Investigating manufacturing, quality control and after-sales service of products

EXTRACURRICULAR ACTIVITIES

- Basketball
- Beta programming
- Cue-sports and bowling
- Poetry
- Swimming
- Tennis

REFERENCES

Available upon request.