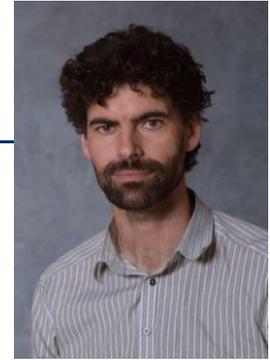


## Resume



Full name: Herman D. Haustein  
Identity number: 011926557  
Date & place of birth: 3/3/1977, Ermelo, South-Africa,  
(Lived in Israel since 18/12/1980)  
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Languages: English and Hebrew – fluent, German, Afrikaans

### **Academic Degrees:**

Ph.D., 2004-2009: Direct Doctorate, Faculty of Mechanical Engineering & Faculty of Aerospace Engineering, Technion, IIT, Haifa

M.A., 2004-2007: As part of studies for Ph.D., same as above, Technion

B.Sc., 2000-2004: Faculty of Mech. Engineering, Technion, Haifa (Summa cum Laude)

### **Professional experience**

2014- : Senior Lecturer, (Asst. Prof. equivalent, Tenure track), Tel Aviv University, Tel Aviv, Israel

2009- 2014: Post-doctoral fellow, Institute of Heat and Mass Transfer (WSA), RWTH, Aachen, Germany

2004-2009: Junior faculty member, Faculty of Mechanical Eng., Technion

2004-2009: Youth science guide, No'ar Shocheh Mada, External studies, Technion

2004: R & D Engineer – Camtek AOI, Migdal Ha'emek, Israel

2000-2002: CAD Draftsman & Technical writing – KLA Tencor, Israel

### **Research interests:**

Multiphase flows: falling films with and without nucleate boiling; Rapid phase transfer: Droplet boiling, bubble growth, nucleate pool boiling; Convective heat transfer enhancement methods: transient free and submerged impinging jets, surface structures in pipe and free flows; Optimization of small scale heat exchangers, with or without phase transfer; Green energy sources: Solar-driven processes, geothermal energy.

combined thermal-mechanical desalination process, combined power/water generating cycles; Combustion processes: fuel atomization and mixing, free-radical ignition, devolatilization and char reaction rates; Advanced field (2 or 3D), flow and thermal measurement and data analysis methods;

**Teaching experience:**

2015- Thermal Management of Electronic Components, Lecturer and Administrator, Tel-Aviv University

2014-2015: Jet and Rocket Propulsion, Course construction, Lecturing and Administration, Tel-Aviv University

2010-2014: Heat and Mass transfer (undergraduate and graduate), RWTH, Aachen

2004-2009: Creative intro. to Mech. Eng., Lab & Teaching assistant, Technion

2009: Experimental methods I (undergraduate), Technion

2007-2008: Fluid Mechanics I (undergraduate), Technion

2006-2007: Thermodynamics I (undergraduate), Technion

2005-2006: Heat Transfer (undergraduate), Technion

**PUBLIC PROFESSIONAL ACTIVITIES**

**Journal/conference reviewer:**

2013- : International Journal of Heat and Mass Transfer

2012- : ASME Journal of Heat Transfer

2010-2015: Reviews for various conferences and journals (AJTEC 2013, IHTC 2010/2014, J.Chem. Eng. Sci., Fuel, Int. J. of Therm. Sci, Int. J. of Heat & Fluid Flow, Measurement, Applied Energy, Heat Transfer Engineering, etc.)

**Conference duties:**

2015: Session chair, 9th Boiling and Condensation Conference, University of Colorado, Boulder, CO, USA

2015: Session chair, Heat Transfer track at ICME (Israeli Conf. of Mech. Eng.), Tel-Aviv, Israel

2013: Multiple reviews for Multiphase Flows Track, ASME/JSME joint summer heat transfer conference, Minneapolis, MN (AJTEC 2013)

2008: Session chair, Heat transfer track, 9th Biennial ASME Conference on Engineering Systems Design and Analysis (ESDA), Technion, Israel

### **Membership in professional societies:**

2007- : American Society of Mechanical Engineering, member

### **Honors & Awards**

2006: Jacob's prize for excellence in research, Technion

2004: Dean of Students prize for starting graduates, Technion

### **SUPERVISED STUDENTS**

2014: Currently the research group includes 1 Lab Technician, 3 Master students and 3 undergraduates

2011-2012: Gerrit Tebrügge, Masters, "hydrodynamics and heat transfer in falling water films"

2010- 201: Supervising multiple graduate and Undergraduates, as well as student workers/ Bachelor degree projects in Falling-films, jet-impingement and coal combustion. Advising on several Master/Ph.D. projects, at RWTH Aachen University (energy & sprays).

### **RESEARCH GRANTS**

2015-2017: "Pulsating Micro Jets for Direct Chip Cooling", US department of Defence (DARPA), with S. Krylov (TAU), G. Ziskind (BGU, coordinator) Y. Peles & M. Amitay (RPI), total ~250,000USD/year, Our share ~65,000 USD/year

2010-2014: Involvement in preparation, submission, correction of at least 4 funding proposals, all to the German Research Foundation (DFG), including Coordinating a cooperation project of RWTH (WSA) and Technion IIT and one between WSA and Tel Aviv University

2010-2011: Funding for preparation of German-Israeli cooperation, JARA Umbrella Cooperation, Project HPC 6: Modelling of Phase Transfer and Waviness for Simulation, in Evaporating Falling Film, with Prof. A. Oron (Technion), total 13,000 Euro.

## PUBLICATIONS

### Theses

2004-2009: "Investigation of Bubbly Flow Creation by Phase-change for Application in Marine Ramjet Engine" (Direct Ph.D., advisors: Prof. A. Gany and Prof. E. Elias)

### REFEREED PAPERS IN PROFESSIONAL JOURNALS

1. H.D. Haustein, T. Kreitzberg, B. Gövert, A. Massmeyer, R. Kneer, "Establishment of Kinetic Parameters of Particle Reaction from a Perfectly Stirred Fluidized Bed Reactor", *Fuel*, under final revision, JFUE-D-15-00096, 2015
2. W. Rohlfs, C. Ehrenpreis, H. D. Haustein, R. Kneer, Influence of viscous flow relaxation time on self-similarity in free-surface jet impingement. *International J. of Heat and Mass transfer*, **78**, 435-446, 2014
3. H. D. Haustein, A. Gany, G.F. Dietze, E. Elias, R. Kneer, The Dynamics of Bubble Growth at Medium-High Superheat: Boiling in an Infinite Medium and on a Wall, *ASME Journal of heat transfer*, 135(7), 2013
4. W. Rohlfs, G.F. Dietze, H. D Haustein, R. Kneer, Experimental Investigation of 3-Dimensional Wavy Liquid Films under the Coupled Influence of Thermo-Capillary and Electrostatic Forces, *European Physics Journal – Special Topics*, **219**, pp. 111-119, 2013
5. W. Rohlfs, G.F. Dietze, H. D Haustein, R. Kneer, Two-Phase Simulations of Electrohydrodynamics Using a Volume of Fluids Approach: A Comment, *J. of Computational Physics*, **231**, Issue 12, pp. 4454-4463, 2012
6. H. D. Haustein, G. Tebruegge, W. Rohlfs, R. Kneer, Local Heat Transfer Coefficient Measurement through a Visibly-Transparent Heater under Jet-Impingement Cooling, *International J. of Heat and Mass transfer*, **55**, Issues 23-24, pp. 6410-6424, 2012
7. W. Rohlfs, G.F. Dietze, H. D Haustein, R. Kneer, Experimental Investigations of 3-dimensional Wavy Liquid Films under the Influence of Electrostatic Forces, *Experiments in Fluids*, **53**, Issue 4, pp.1045-1056, 2012
8. W. Rohlfs, H. D. Haustein, O. Garbrecht, R. Kneer, Insights into the Local Heat Transfer of a Submerged Impinging Jet: Influence of Local Flow Acceleration and

Vortex-Wall Interaction, *International J. of Heat and Mass transfer*, **55**, Issues 25–26, pp.7728-7736, 2012

9. H. D. Haustein, A. Gany, E. Elias, Rapid Boiling of a Two-Phase Droplet in an Immiscible Liquid at High Superheat, *ASME J. of Heat Transfer*, **131**, issue12, 121010, 7 pages, 2009

#### **PEER-REVIEWED, PUBLISHED AND SUBMITTED CONFERENCE PAPERS**

1. H.D. Haustein, “Modular Prediction of Heat Transfer Under Free-Jets: Single Jet, Jet Array, and the Influence of Gravity”, (accepted paper #1570076061 to be presented) *11th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2015)*, 20-23 July, 2015, Kruger National Park, South-Africa
2. H.D. Haustein, “RCD Boiling Model: Single Bubble Growth and Departure, Under Microgravity and High Pressure”, *9<sup>th</sup> Biannual Boiling and Condensation Conference*, Boulder, CO, USA, April 2015
3. H. D. Haustein, W. Rohlf, F. Al-Sibai, R. Kneer, Evaluation of the Sensitivity and Response of IR Thermography from a Transparent Heater in the Case of liquid Jet Impingement, *6th European Thermal Sciences Conference – Eurotherm*, Poitiers-Futuroscope, France, September 04-07, in: *Journal of Physics: Conference Series*, Vol. 395, 2012
4. H. D. Haustein, J. Joerg, W. Rohlf, R. Kneer,\_(2014, May). Influence of micro-scale aspects and jet-to-jet interaction on free-surface liquid jet impingement for micro-jet array cooling. In *Thermal and Thermomechanical Phenomena in Electronic Systems (ITherm)*, 2014 IEEE Intersociety Conference on (pp. 904-911). IEEE.
5. R. Kneer, H. D. Haustein, C. Ehrenpreis, W. Rohlf, Flow Structures and Heat Transfer in Submerged and Free Laminar Jets", Keynote KN28 (IHTC15-8378), presented by Prof. Reinhold Kneer, In *Proceedings of the 15th International Heat Transfer Conference*, Kyoto, Japan, 2014
6. W. Rohlf, C. Ehrenpreis, H. D. Haustein, O. Garbrecht, R. Kneer, Influence of local flow acceleration on the heat transfer of submerged and free-surface jet

impingement, Paper IHTC15-8378, Proceedings of the 15th International Heat Transfer Conference, IHTC-15, 2014, Kyoto, Japan

7. H. D. Haustein, B. Goevert, D. Christ, M. Habermehl, O. Hatzfeld, R. Kneer, Small Scale Fluidized Bed Reactor for Investigation of Particle Reaction Rates: Char Combustion and the Boudouard Reaction, (Paper No. 2825594), *6th European Combustion Meeting (ECM 2013)*, Malmoe, Sweden, 25-28 June, 2013
8. H. D. Haustein, W. Rohlf, F. Al-Sibai, R. Kneer, Development of Heat Transfer in a Two-Dimensional Wavy Falling Film of Water and its Influence on Wave Stability, (Paper HT2013-17453), *ASME Summer Heat Transfer Conference*, Minneapolis, MN, USA, July 14-19, 2013
9. H. D. Haustein, G. Tebruegge, W. Rohlf, R. Kneer, Experimental Investigation of the Evolution and Stability of Excited Two-Dimensional Wavy Falling Films of Water, *International Fluid Dynamics and Processes - 6<sup>th</sup> Conference of the International Marangoni Association (IMA6)*, Haifa, Israel, 18-21 June, 2012
10. H. D. Haustein, G.F. Dietze, R. Kneer, A New Empirical Model for Bubble Growth: Boiling in an Infinite Medium and on a Wall at High Superheat, *AJTEC (ASME-JSME) Summer Heat Transfer Conference*, Honolulu, Hawaii, March 13-18, 2011
11. H. D. Haustein, A. Gany, E. Elias, Study of a Two-Phase Underwater Ramjet Propulsor Employing Liquefied Gas Boiling, *Second International Symposium on Marine Propulsors*, Hamburg, June 15-17, 2011
12. H. D. Haustein, A. Gany, E. Elias, Experimental Parametric Study of Droplet Rapid Boiling in Immiscible Liquid, *9<sup>th</sup> biennial European ASME conference ESDA*, Haifa, Israel, July 2008

Additional papers (non-reviewed) have been submitted and are available on request

#### **ADDITIONAL PRESENTATIONS & WORKSHOPS (ONLY LAST 5 YEARS)**

2014-2015, *Prediction of Nucleate boiling – is it even possible?*, *From Generalization to Specialization, from Multidisciplinary to Similarity, or what we do when we get stuck*, and various other presentations at Tel Aviv University, Tel Aviv, Israel

28.03.2013, *Enhancement of Multi-scale Cooling Methods through Deeper Understanding of Physical Mechanisms: Falling Films, Nucleate Boiling and Impinging Jets*, General Electric Global Research Center, Niskayuna, NY, USA

2013            3<sup>rd</sup> HVI Gastech workshop, Clausthal Technical University, Clausthal, Germany

2012            2<sup>nd</sup> HVI Gastech workshop, Juelich Institute of Tech., Juelich, Germany

21.06.2012    *Evolution and Stability of Waves on Falling Films of Water*, Dpt. of Mech. Engineering, Ben-Gurion University, Beer-Sheva, Israel

18.06.2012    *Methods for Enhancement of Single-Phase Cooling by Impinging Liquid Jets*, Faculty of Mech. Eng., Technion, Haifa Israel

2012            1<sup>st</sup> HVI Gastech workshop, Karlsruhe Institute of Tech., Karlsruhe, Germany

09.01.12,      *High sensitivity IR thermal measurements for establishment of the heat transfer coefficient in impinging jets*, Department of Mechanical Engineering, Tel – Aviv University, Tel-Aviv, Israel

05.01.12,      *Direct local convective heat transfer coefficient measurement in a visibly-transparent setup for steady and transient jet-impingement cooling*, Dpt. of Mech. Engineering, Ben-Gurion University, Beer-Sheva, Israel