Ayelet Goldstein

November 02, 2019

CURRICULUM VITAE

1. Personal Details

Born November 15, 1971. Married + 8.
Citizenship: Israeli, I.D.# 028777811
Address: 20 Duchifat St., Bat-Hefer 4284200
Phone: 09-8783362, Cellular: 053-8783362
Work Phone: 04-9901767. Fax: 04-9901886.
E-mail: ayelet@braude.ac.il
Web site: http://www.braude.ac.il/faculty/?itemid=%7B93299348-A895-4B7D-8C4AD18B40001D7B%7D

2. Higher Education

Undergraduate and Graduate Studies

Period of Study	Name of Institution and Department	Degree	Year of Approval of Degree
1992-1996	Tel-Aviv University, Mechanical Engineering	B.Sc.	1996
1997-2000	Tel-Aviv University, Mechanical Engineering: Solid Mechanics and Systems	M.Sc.	2000
2001-2003	Tel-Aviv University, Mechanical Engineering: Fluid Mechanics and Heat Transfer (The Environmental Engineering Program)	M.Sc.	2003
2004-2012	Tel-Aviv University, Mechanical Engineering: Fluid Mechanics and Heat Transfer	Ph.D.	2012

3. Academic Ranks and Tenure in Institutes of Higher Education

Dates	Name of Institution and Department	Rank/Position
2013–2015	ORT-Hermelin Academic College of Engineering and Technology, Netanya, Mechanical Engineering.	Lecturer/Faculty member
2013- Present	Ruppin Academic Center, Emek-Hefer, Electrical and Electronic Engineering	Adjunct Lecturer
2015- Present	ORT-Braude College, Karmiel, Mechanical Engineering	Lecturer/Faculty member

4. Offices in Academic Administration

2015–Present Energy Laboratory supervisor, ORT Braude College, Karmiel.

2017- Present Departmental representative to the Organizing Committee Excellence Program, ORT-Braude College, Karmiel

2018-2019 Academic adviser for senior-year B.Sc. students.

5. Scholarly Positions and Activities outside the Institution

2015–2017 Consultant, Torrefaction Gasification for Lool Co., Gan Hashomron.

6. Participation in Scholarly Conferences

a. Active Participation

Date	Name of Conference	Place of Conference	Subject of Lecture/Discussion	Role
May 2005	*Proc. of the 30th Israeli Conference on Mechanical Engineering*, Multi-Phase Flow.	Tel-Aviv University, Tel-Aviv, Israel,	Laminar Two-Phase Separated Flows: Analytical and Mechanistic Models	Lecturer
June 26-30, 2005	*Proc. of the 4th Int. conf. on Transport Phenomena and Multiphase Systems* (Ed. J. Mikielewicz , D. Butrymowicz, M. Trela and T. Cieslinski), HEAT2005, Gdansk, Poland, June 26-30, 2005.	Gdansk, Poland,	Gas-Liquid and Liquid-Liquid Stratified Flows: Analytical and Mechanistic Models	Co-Author
August, 2006	*Proc. of the 13th International Heat Transfer Conf.*	Sydney Australia	Laminar Two Phase Separated Flows: Analytical Solutions	Presenter in a poster session
June 2009	The *47th European Two-Phase Flow Group Meeting*, Multi-Phase Flow	Bled Slovenia,	Characteristics of Laminar Separated Flows in Inclined Pipes	Co-Author
September 2009	Proc. of the *5th European-Japanese Two-Phase Flow Group Meeting*,	Spoleto, Italy, 20-25	Wall and Interfacial Shear Stresses in Separated Laminar Flows	Co-Author
May 30-June 4, 2010	Proc. of the *7th International Conference on Multiphase Flow ICMF*.	Tampa FL USA,	Characteristics of Separated Laminar Flows in Inclined Pipes	Co-Author

November 22-23, 2016	Proc. of the 34th *Israeli Conference on Mechanical Engineering ICME2016*.	Technion, Israel, November 22-23, 2016	Benefits of Adding a Lubricating Phase for Transportation of a Viscous Fluid in Inclined CAF's	Lecturer
November 22-23, 2016	Proc. of the 34th *Israeli Conference on Mechanical Engineering ICME2016*	Technion, Israel,	Exact Solutions of Core-Annular Laminar Inclined Flows	Lecturer
August 14-18, 2016	The 6th *International Conference on Energy Challenges and Mechanics ECM6*.	Inverness, Scotland, UK	Adding a Lubricating Phase for Conveying of a Viscous Liquid in Inclined CAF's	Lecturer
October 2018	Proc. of the 35th *Israeli Conference on Mechanical Engineering ICME2018*.	Ben-Gurion University of the Negev	An Analytical Solution for Creeping Flow in a Narrow Gap between Two Surfaces Created by Injected Flux	Co-Author
October 2018	Proc. of the 35th *Israeli Conference on Mechanical Engineering ICME2018*.	Ben-Gurion University of the Negev	Green's Function Method for Solving the Separated Two-Phase Flow in Inclined Tubes by Superposition,	Lecturer

b. Organization of Conferences or Sessions

Date	**Name of Conference**	**Place of Conference**	**Subject of Conference/ Role at Conference/ Comments**	**Role**
22-23 November 2016	The 34^{h} *Israeli Conference on Mechanical Engineering, ICME2016.*	Technion, Haifa, Israel,	Energy Sources	Session Chair
25-26 October 2017	ORT-Braude Interdisciplinary Research Conference.	Nachsholim, Israel	Interdisciplinary Research Conference	Member, organizing committee
2017-2018	The 35th Israeli Conference on Mechanical Engineering (ICME 2018).	Ben-Gurion University of the Negev	Energy Sources	Member, organizing committee, College representative
9-10 October 2018	The 35th Israeli Conference on Mechanical Engineering (ICME 2018).	Ben-Gurion University of the Negev	Energy Sources	Session Chair

8. Research Grants

Role in Research	Co-Researchers	Topic	Funded by/ Amount	Year
Researcher	Dr. Ofer Eyal	Fluid mechanics on the *d* dimensional sphere, S^d	ORT-Braude, 4,200 ILS	2018
Researcher	Dr. Ofer Eyal	Multi-phase flow analytical solutions	ORT-Braude, 10,000 ILS	2019

9. Scholarships, Awards and Prizes

Certificate of Appreciation for GoldShutter' Patent, ORT Braude College, 2016.

Certificate of Appreciation for GoldShutter' Patent, ORT Braude College, 2017.

10. Teaching

Year	Name of Course	Type of Course Lecture/Seminar/ Workshop/High Learn Course/ Introduction Course (Mandatory)	Degree	Number of Students
2013-Present	Introduction to Control System	Lecture, Mandatory	B.Sc.	120
2013-2014	Advanced Control Systems	Lecture, Mandatory	B.Sc.	40
2013-2014	Laboratory of Advanced Control Systems	Laboratory Supervisor	B.Sc.	40
2015	Fluid-Mechanics 2	Lecture, Mandatory	B.Sc.	30
2014-2015	Micro Electro-Mechanical Systems (MEMS)	Lecture, Mandatory	B.Sc.	40
2014-2015	Laboratory of MEMS	Laboratory Supervisor	B.Sc.	60
2015-2016	Introduction to Robotics	Lecture, Mandatory	B.Sc.	40
2015-Present	Fluid Mechanics 1	Lecture, Mandatory	B.Sc.	80
2015-Present	Thermodynamics 1	Lecture, Mandatory	B.Sc.	40

2016-2017	Creative Introduction to Mechanical Engineering	Lecture, Mandatory	B.Sc.	100
2018-Present	Signals and Linear Systems	Lecture, Mandatory	B.Sc.	40
2020-present	Thermodynamic Statistics	Lecture, Mandatory	B.Sc.	15

11. Miscellaneous

Patents

Goldstein A., O. Eyal, "GoldShutter", **P**atent **C**ooperation **T**reaty PCT/IL2017/051046.

Project Supervision (B.Sc.)

Project Areas: Control systems, Fluid Mechanics, Thermodynamics, Solid Mechanics.

The 7th Academy-Industrial ORT-Braude College, Excellent Project Competition-1st Place.

PUBLICATIONS

A. Ph.D. Dissertation

Goldstein, A., Analytical Solution of Two-Phase Laminar Stratified Flow in Separated Inclined Pipes and their Closure Relations, Ph.D. Dissertation, School of Engineering, Tel-Aviv University, Israel, 2012. **Supervisors:** Prof. Neima Brauner and Prof. Amos Ullmann.

B. Articles in Refereed Journals

Published

1. Eyal O. and **Goldstein A**. Gauss' Law for Moving Charges from First Principles. *Results in Physics*, Volume 14, 2019, 102454.

2. Eyal O. and **Goldstein A**. Green's Function Method for Solving the Separated Two-Phase Flow in Inclined Tubes with Driving Force Contributions. *Journal of Multiphase Flow,* Volume 117, 103-113, 2019.

3. Eyal O. and **Goldstein A**. Potential problems on surfaces: with or without boundary, subjected to discrete distributed sources. *Results in Physics*, Volume 12, 1697-1711, 2019.

4. **Goldstein A**. and Eyal O. Radiation Fields Created by accelerated Relativistic charges: A Simple approach Based on Inertial Moving Charges, *Results in Physics*, Volume 12, 1104-1110, 2019.

5. **Goldstein, A.** and O. Eyal, Relationships among charges, fields, and potential on spherical surfaces boundary value problems, *Results in Physics*, Volume 11, 335-349, 2018.

6. **Goldstein, A.,** Ullmann, A., and Brauner, N., Exact solutions of core-annular laminar inclined flows, *Int. J. Multiphase Flow*, Volume 93, 178-204, 2017.

7. **Goldstein A.,** Brauner, N., Ullmann, A., Characteristics of Stratified Laminar Flows in Inclined Pipes, *Int. J. Multiphase Flow*, Volume 75, 267-287, 2015**.**

8. Ullmann, A., **Goldstein A.,** Brauner, N., Gas-Liquid and Liquid-Liquid Stratified Flows Analytical and Mechanistic Models *The Szewalski Institute of Fluid-Flow Machinery, Polish Academy of sciences. Transactions of the Institute of Fluid-Flow Machinery* 117, 59-79, 2005.

9. Ullmann, M Zamir, **A. Goldstein** and N. Brauner, Closure Relations for the Shear Stresses in Two-Fluid Models for Laminar Stratified Flow, *Int. J. Multiphase Flow*, 30(7-8) 877-900, 2004,

F. Articles in Conference Proceedings

Published

1. **Goldstein, A**. and Ofer Eyal, Superposition of Driving Force Densities contributions as a method for solving two-phase flow in inclined tubes; bulk, interface and triple-points behavior, *Proc. of the 12th International Conference on Computational Heat, Mass and Momentum Transfer (ICCHMT2019),* Roma Tre University and Sapienza University of Rome, Italy, September 2019.

2. **Goldstein, A**. and Ofer Eyal, Potential Problems on Surfaces: with or without Boundary, Subjected to Discrete Distributed Sources, *Proc. of the 12th International Conference on Computational Heat, Mass and Momentum Transfer (ICCHMT2019),* Roma Tre University and Sapienza University of Rome, Italy, September 2019.

3. **Goldstein, A**., Ullmann, A., Brauner, N., Characteristics of Separated Laminar Flows in Inclined Pipes, Proc. of the *7th International Conference on Multiphase Flow ICMF*, Tampa FL USA, May 30 June 4, 2010.

4. **Goldstein, A**., Ullmann, A., Brauner, N., Laminar Two Phase Separated Flows: Analytical Solutions, *Proc. of the 13th International Heat Transfer Conf*., paper No. MTH10, Sydney Australia, 13-18 August, 2006**.**

5. **Goldstein, A**., Ullmann, A., Brauner, N., Gas-Liquid and Liquid-Liquid Stratified Flows: Analytical and Mechanistic Models *Proc. of the 4th Int. conf. on Transport Phenomena and Multiphase Systems* (Ed. J. Mikielewicz , D. Butrymowicz, M. Trela and T. Cieslinski), HEAT2005, Gdansk, Poland, June 26-30, 2005.

H. Other Scientific Publications

Conference Abstracts

6. **Goldstein, A**. and Ofer Eyal, Green's Function Method for Solving the Separated Two-Phase Flow in Inclined Tubes by Superposition, Proc. of the 35*th Israeli Conference on Mechanical Engineering ICME2018,* Ben-Gurion University of the Negev, October 2018.

7. **Goldstein, A**. and Ofer Eyal, An Analytical Solution for Creeping Flow in a Narrow Gap between Two Surfaces Created by Injected Flux, Proc. of the 35*th Israeli Conference on Mechanical Engineering ICME2018,* Ben-Gurion University of the Negev, October 2018.

8. **Goldstein, A**., Ullmann, A., Brauner, N., Benefits of Adding a Lubricating Phase for Transportation of a Viscous Fluid in Inclined CAF's, Proc. of the 34*th Israeli Conference on Mechanical Engineering ICME2016,* Technion, Israel, November 22-23, 2016.

9. **Goldstein, A**., Ullmann, A., Brauner, N., Exact Solutions of Core-Annular Laminar Inclined Flows, Proc. of the 34*th Israeli Conference on Mechanical Engineering ICME2016,* Technion, Israel, November 22-23, 2016.

10. **Goldstein, A**., Ullmann, A., Brauner, N., Adding a Lubricating Phase for Conveying of a Viscous Liquid in Inclined CAF's, The 6*th International Conference on Energy Challenges and Mechanics ECM6,* Inverness, Scotland, UK, August 14-18, 2016.

11. **Goldstein, A**., Ullmann, A., Brauner, N., Wall and Interfacial Shear Stresses in Separated Laminar Flows, Proc. of the *5th European-Japanese Two-Phase Flow Group Meeting*, Spoleto, Italy, 20-25 September 2009.

12. **Goldstein, A**., Ullmann, A., Brauner, N., Characteristics of Laminar Separated Flows in Inclined Pipes, The *47th European Two-Phase Flow Group Meeting*, Bled Slovenia, Multi-Phase Flow, June 2009.

13. **Goldstein, A**., Ullmann, A., Brauner, N., Laminar Two-Phase Separated Flows: Analytical and Mechanistic Models *Proc. of the 30th Israeli Conference on Mechanical Engineering*, Multi-Phase Flow, Tel-Aviv University, Tel-Aviv, Israel, May 2005.

Submitted Papers

1. Eyal O. and **Goldstein A**. Magnetic dipoles as tools for deriving some of the laws of electrodynamics: an intuitive approach . *Results in Physics*, Volume XX (to be appeared).
2. **Goldstein A**. and Eyal O. Modes of movement of a rigid body. *Applied Mechanical modelling*.
3. **Goldstein A**. and Eyal O. Local behavior near triple point in laminar two-phase flow in an arbitrary. *Applied Mechanical modelling*.
4. **Goldstein A.,** Eyal O., Ullmann A., Brauner Neima Wall and interfacial shear stresses in stratified laminar flows. *Applied Mechanical modelling*.**,** *Int. J. Multiphase Flow*

I. Summary of my Activities and Future Plans

- **TWO-PHASE FLOW ; CREEPING FLOW ON SURFACES ; ACCELERATED CHARGES ; MANIFOLDS ; FRICTION ANALYSIS**

Ayelet Goldstein and Ofer Eyal

1. Creeping flow on surfaces: uses of complex analysis for finding pressure and velocity field when the flow is constrained to surfaces, with various topologies. Point sources and vorticity centres are studied as a cause for the pressure gradients and velocity field.

2. Multiphase developed flow in a pipe: uses of Green functions and other mathematical techniques for better understanding and simpler solutions the physical situation; analogy with electric fields currents and potentials is investigated for modelling. Point singularities and their physical explanation, together with practical implications are investigated.

3. Accelerated charges radiation: a new approach, for the radiation emitted by relativistic accelerated charges.

4. Some nature laws are modified when space is regarded as a non-flat manifold: investigating the fundamental solution for essential operators. Application for multidimensional electrodynamics (e.g., on the d dimensional sphere, S^d)

5. Friction: a) the puzzle of the modes of passage of a body from rest to movement; b) the motion of a body in the presence of friction, propelled by a rotating mass; c) assisting the movement under friction, by an internal movement.

- **INVERSE GROUND EFFECT ON A DOWNWARD THRUSTING PROPELLER**

Ayelet Goldstein, Avi Weiss and Ofer Eyal

6. While developing a wall climbing robot utilizing downward thrust propellers for increasing traction, a decrease in thrust was discovered when propellers get close to the ground. Whereas ground effect usually increases lift, in this case we observe the opposite phenomenon, which was not investigated yet. First experimental work shows that increasing the distance of the propellers from the ground increases the thrust.