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Resume

Full name: Victor Chernov

Business Address: Department of Mechanical Engineering
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ACADEMIC DEGREES

2010 Ph.D. Faculty of Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

2005 M.Sc. Faculty of Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

2002 B.Sc. Faculty of Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel.

ACADEMIC APPOINTMENTS

2016 – Present	Ort Braude College of Engineering, Karmiel, Israel. Senior Lecturer, Department of Mechanical Engineering.
2016 – Present	Technion – Israel Institute of Technology, Haifa, Israel. Adjunct Lecturer, Faculty of Aerospace Engineering.
2017	University of Toronto, Toronto, ON, Canada. Visiting Professor. Department of Mechanical and Industrial Engineering
2012 – 2015	Technion – Israel Institute of Technology, Haifa, Israel. Senior Researcher, Faculty of Aerospace Engineering.
2010 – 2012	University of Toronto, Toronto, ON, Canada. Post-doctoral Fellow, Department of Mechanical and Industrial Engineering.
2002 – 2010	Technion – Israel Institute of Technology, Haifa, Israel. Teaching Assistant, Faculty of Aerospace Engineering.

PROFESSIONAL EXPERIENCE

2015 – 2016	IARD Sensing Solutions ltd., Yagur, Israel. Senior Researcher in the simulation group

RESEARCH INTERESTS

Combustion; Numerical Modeling; Propulsion; Rheology; Fluid mechanics

TEACHING EXPERIENCE

2016 – present Ort Braude College, undergraduate. Fluid Mechanics

2016 - present Ort Braude College, undergraduate. Thermodynamics

2018 - present Ort Braude College, undergraduate. Fundamentals of Combustion Processes. New course, responsible for the course design.

2018 – present Ort Braude College, undergraduate. Numerical Analysis

2015-2016 Technion – Israel Institute of Technology, graduate. Gel Propulsion. Was responsible for adaptation of the course from undergraduate studies to graduate.

2002-2010 Technion – Israel Institute of Technology, undergraduate, teaching assistant. Propulsion Laboratory, Solid Propellant Rocket Propulsion, Special Topics in Rocket Propulsion, Ramjet Engines, Design and Manufacturing 1

FELLOWSHIPS, AWARDS and HONORS

2010 Lyon Sachs Postdoctoral Fellowship - University of Toronto.

2008 Timnat Prize for Research in Propulsion – Technion – Israel Institute of Technology.

2007 Ilan Ramon Scholarship - The Israeli Ministry of Science and Technology.

2007 Ilan Ramon Scholarship - The Industrial and Commercial Club, Israel.

2005 Fine Scholarship for new Ph.D. students – Technion, Israel Institute of Technology

PUBLICATIONS

Theses

- "Pulsed Injection of Gel Propellants," M.Sc. Thesis, Faculty of Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel, August 2005, (in Hebrew).

- "The Rheological Properties of a Suspension of Solid Particles in a Shear-Thinning, Power-Law Fluid," Ph.D. Thesis, Faculty of Aerospace Engineering, Technion - Israel Institute of Technology, Haifa, Israel, August 2010.

Refereed Papers in Professional Journals

Published Papers

- Chernov, V. and Natan, B., "Effect of Periodic Disturbances on non-Newtonian Fluid Sprays," *Atomization and Sprays*, Vol. 18, No. 8, 2008, pp. 723-738. doi 10.1615/AtomizSpr.v18.i8.30

- Chernov, V. and Natan, B., "A Simplified Model for the Evaluation of the Rheological Properties of a Suspension of Solids in a Power-Law Fluid," *Applied Rheology*, Vol. 22, 2012, pp. 15163-1 – 15163-10.

- Chernov, V., Dworkin, S.B., Zhang, Q. and Thomson, M.J., "Numerical investigation of soot formation mechanisms in partially-premixed ethylene-air coflow flames," *Combustion and Flame*, Vol. 158, No. 9, Sep. 2012, pp. 2789-2798. https://doi.org/10.1016/j.combustflame.2012.02.023

- Chernov, V. and Natan, B., "Estimation of the Rheological Properties of a Suspension in a Gel Fluid," *AIAA Journal*, Vol. 51, No. 4, 2013, pp. 998-1003. https://doi.org/10.2514/1.J052042

- Chernov, V., Dworkin, S.B., Thomson, M.J., Slavinskaya, N.A. and Riedel, U., "Soot formation with C1 and C2 fuels using an improved chemical mechanism for PAH growth," *Combustion and Flame*, Vol. 161, No. 2, Feb. 2014, pp. 592-601. https://doi.org/10.1016/j.combustflame.2013.09.017

- Kholghy, M. R., Afarin, A., Sediako, A. D., Barba, J., Lapuerta, M., Chu, C., Weingarten, J., Borshanpour, B., Chernov, V. and Thomson, M. J., "Comparison of Multiple Diagnostic Techniques to Study Soot Formation and Morphology in a Diffusion Flame," *Combustion and Flame*, Vol. 176, Feb. 2017, pp. 567-583.

Submitted Papers

- Slavinskaya, N. A., Mirzayeva, A., Whitside, R., Starke, J. H., Abbasi, M., Auyelkhankyzy, M., and Chernov. V., "A Modeling Study of Acetylene Oxidation and Pyrolysis," submitted to *Combustion and Flame*

- Sapozhnikov, I., Chernov V., "Rheological Properties of Composite Polymer Liner Based on Hydroxyl Terminated Polybutadiene," submitted to *International Journal of Energetic Materials and Chemical Propulsion*

- Chernov V., " Experimental Investigation of Solid Fuel Scramjet Using Arc Heater," submitted to *Journal of Propulsion and Power*, manuscript ID 2018-11-B37469

<u>Refereed Papers in Conference Proceedings</u>

- Chernov, V. and Natan, B., "Experimental Investigation of a Pulsatile Injection Gel Spray," Paper 12-12, Proceedings of the 45th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 23-24, 2005.

- Chernov, V. and Natan, B., "Atomization of Gel Propellants Using Pulsatile Injection," Proceedings of the 6th International Symposium on Chemical Propulsion, Santiago, Chile, March 8-11, 2005.

- Chernov, V. and Natan, B., "Experimental Characterization of a Pulsatile Injection Gel Spray," AIAA paper 2005-4479, July 2005.

- Chernov, V. and Natan, B., "The feeding process of metallized gel fuels," Paper 329, Proceedings of the 2nd European Conference on Aerospace Sciences, Brussels, Belgium, July 2-7, 2007.

- Chernov, V. and Natan, B., "The Effect of Metal Particulates on the Rheological Properties of Gel Fluids," Paper 392, Proceedings of the 48th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 27-28, 2008.

- Chernov, V. and Natan, B., "Simplified Rheological Modeling of Metallized Gel Fuels," AIAA- 2008-4872, 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Hartford, CT, July 21-23, 2008.

- Chernov, V. and Natan, B., "Rheological properties of a suspension of solids in a Power Law fluid," Proceedings of the 3rd European Conference on Aerospace Sciences, Paris, France, July 6-9, 2009.

- Chernov, V. and Natan, B., "On Shear-Thinning Gel Propellants with Metal Powders," AIAA- 2010-6820, 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, July 25-28, 2010.

- Chernov, V., Dworkin S.B., Zhang, Q. and Thomson, M.J., "A Detailed Model of a Sooting Laminar Methane-Air Diffusion Flame," Proceedings of the 51st Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 23-24, 2011, pp. 521-528.

- Chernov, V., Dworkin S.B., Zhang, Q. and Thomson, M.J., "Numerical Analysis of PAH growth mechanisms in a sooting laminar methane-air diffusion flame," Proceedings of 2011 Combustion Institute Canadian Section Spring Technical Meeting, University of Manitoba, Winnipeg, MB, Canada, May 8-11, 2011.

- Chernov, V., Mian, A. and Thomson, M.J., "Passive optical measurements of the soot properties in laminar co-flow flames," Proceedings of the 52nd Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 29-Mar. 1, 2012.

- Chernov, V., Dworkin S.B., Zhang, Q. and Thomson, M.J., "Numerical investigation of sooting partially premixed ethylene-air coflow flames," Proceedings of 2012 Combustion Institute Canadian Section Spring Technical Meeting, Toronto, ON, Canada, May 13-16, 2012.

- Chernov, V., Gany, A., "Experimental Investigation of a Pipe-connected Solid Fuel Scramjet in an Arc-heated Facility, " Proceedings of the 5th European Conference for Aeronautics and Space Sciences, Munich, Germany, July 1-5, 2013

- Chernov, V., "Experimental Investigation of a Two-Dimensional Solid-Fuel Scramjet Combustion Chamber," Proceedings of the 54th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, February 19-20, 2014.

- Chernov, V., “Investigation of Solid-Fuel SCRAMJET combustion chamber at flight conditions of Mach 5.5,” Proceedings of the 10th International Symposium on Special Topics in Chemical Propulsion, Poitiers, France, June 2-6, 2014.

- Landsman, Y., Landsman, K., Metuki, O., Karni, B., Chernov, V., Hillman, Y., "The Spaceship – Live and Interactive Show in Hebrew", Proceedings of the 56th International Astronautical Congress, Jerusalem, Israel, October 12-16, 2014.

CONFERENCES

- 45th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 23-24, 2005. Talk topic: "Experimental Investigation of a Pulsatile Injection Gel Spray."

- 10th International Congress on Liquid Atomization and Spray Systems, August 27 - September 1, 2006, Kyoto, Japan. Talk topic: "The Effect of Periodic Disturbances on Non-Newtonian Fluid Sprays."

- 2nd European conference for Aerospace Sciences, July 1 – 6, 2007, Brussels, Belgium. Talk topic: "The feeding process of metallized gel fuels."

- 48th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 27-28, 2008. Talk topic: "The Effect of Metal Particulates on the Rheological Properties of Gel Fluids."

- 44th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, Hartford, CT, July 21-23, 2008. Talk topic: "Simplified Rheological Modeling of Metallized Gel Fuels."

- 5th Annual European Rheology Conference, April 15-17, 2009, Cardiff, Wales, UK. Poster topic: "Rheological properties of suspension of solid spheres in a Power Law fluid."

- 3rd European conference for Aerospace Sciences, July 6 – 9, 2009, Paris, France. Talk topic: "Rheological properties of a suspension of solids in a Power Law fluid."

- 46th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit, July 25-28, 2010. Speaker: Talk topic: “On Shear-Thinning Gel Propellants with Metal Powders.”

- 51st Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 23-24, 2011. Speaker: Takk topic: “A Detailed Model of a Sooting Laminar Methane-Air Diffusion Flame.”

- Combustion Institute Canadian Section Spring Technical Meeting, University of Manitoba, Winnipeg, MB, Canada, May 8-11, 2011. Talktopic: “Numerical Analysis of PAH growth mechanisms in a sooting laminar methane-air diffusion flame.”

- 52nd Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, Feb. 29-Mar. 1, 2012. Talktopic: “Passive optical measurements of the soot properties in laminar co-flow flames.”

- Combustion Institute Canadian Section Spring Technical Meeting, University of Toronto, Toronto, ON, Canada, May 13-16, 2012. Talktopic: "Numerical Investigation of Sooting Partially Premixed Ethylene-Air Coflow Flames."

- 5th European Conference for Aeronautics and Space Sciences, Munich, Germany, July 1-5, 2013. Talktopic: "Experimental Investigation of a Pipe-connected Solid Fuel Scramjet in an Arc-heated Facility."

- 54th Israel Annual Conference on Aerospace Sciences, Tel Aviv and Haifa, Israel, February 19-20, 2014. Talk topic: "Investigation of Solid-Fuel SCRAMJET combustion chamber at flight conditions of Mach 5.5."

- 10th International Symposium on Special Topics in Chemical Propulsion, Poitiers, France, June 2-6, 2014. Poster topic: "Investigation of Solid-Fuel SCRAMJET combustion chamber at flight conditions of Mach 5.5"

- The 31st Annual Symposium of the Israeli Section of the Combustion Institute, Tel-Aviv, Israel, Dec. 14, 2017. Talk topic: "Full Flame SSE Soot Measuring Method".

Plenary, Keynote or Invited Talks

- The 26th Annual Symposium of the Israeli Section of the Combustion Institute, Tel-Aviv, Israel, Dec. 13, 2012. Speaker: V. Chernov. Presentation topic: "Soot Processes in Laminar Flames – Modeling of the Partially Premixed Configuration".