

Curriculum Vitae

Name: Hod Wirzberger

Passport number: 22436961

Work record

11/2018-

Head of CFD and R&D group TOMER

Head of TALMI CFD for rocket motors – national knowledge center program

Research in the fields of CFD and internal ballistics at TOMER). Director of research projects in the development of analytic tools for the design of large and small rocket motors and experiments in combustion instability. Development of CFD for aeroballistics design of small rockets with extended ranges upto 150 km. Specializes in High Performance Computing for complex mathematical and multi physics simulations. Development of algorithms and analytical models for complex physical and chemical process involving flow, mass transfer, radiation, combustion and erosion in rocket motors. Development of analytical models and complex simulations for development of advanced rocket propulsion systems.

Part of the development teams for ISRAEL space launch system, Arrow missile interceptor system , Extended range artillery rocket and other artillery rocket systems. Development of tools and code for prediction of rocket motor plume IR signature.

2015- 11/2018

Head of CFD and R&D group IMI SYSTEMS/FIRE SYSTEMS DEVISION

Head of TALMI CFD for rocket motors – national knowledge center program

Research in the fields of CFD and internal ballistics at IMI (Israeli Military Industries) RSD (Rocket systems division). Director of research projects in the development of analytic tools for the design of large and small rocket motors and experiments in combustion instability. Development of CFD for aeroballistics design of small rockets with extended ranges upto 150 km. Specializes in High Performance Computing for complex mathematical and multi physics simulations. Development of algorithms and analytical models for complex physical and chemical process involving flow, mass transfer, radiation, combustion and erosion in rocket motors.

Development of analytical models and complex simulations for development of advanced rocket propulsion systems.

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March 2003 – 2014

Research in the fields of CFD and internal ballistics at IMI (Israeli Military Industries) RSD (Rocket systems division). Director of research projects in the development of

analytic tools for the design of large and small rocket motors and experiments in combustion instability. Development of analytical models and complex simulations for development of advanced rocket propulsion systems. Part of the development teams for ISRAEL space booster motor , Arrow missile interceptor system , Extended range artillery rocket and other artillery rocket systems. Development of tools and code for prediction of rocket motor plume IR signature.

March 1996- March 2003

Research assistant Technion. Instructor in numerical analysis computer C programming, Data structures, Heat and Mass transfer, CNC material processing.

Experimental and analytical research in the Aerosol field.

Research of Aerosol particle motion under the thermophoretic force.

Research of non spherical particle motion and collisions in shear flows.

Military service

March 1991 - March 1996 Military

service in the IDF.

Technical officer in the ordnance core. Quality control manager in the IDF tank manufacturing plant. QA manager and TQM implementation in the metal processing plant.

QA in different thecoly production lines for metal forming cutting heat treatment and coating and paint.

Management of logistics improvements for land combat systems. Maintenances and safety improvements in combat systems - vehicles, tanks, self propelled guns. Part of the logistic development team for several land based new weapons systems of the IDF.

Transition form research state to production for different weapons systems and weapons improvement projects. current - retired major.

Education

Jan 1999- 2004

P. hd. studies Mechanical Engineering Technion.

Interest Fields - measurement technology, characterization control manufacturing and application of micron and nano particles.

Research subject- analytic and experimental study of dynamics of drops and particles in different flow regimes in the atmosphere.

March 1996 - Dec 1998

M. Sc. studies Mechanical Engineering Technion.

Interest Fields - Clean room technology, measurement technology, characterization control manufacturing and application of micron and nano particles.

Research subject- analytical and experimental study of thermophoretic deposition of aerosols from duct flows.

March 1987- March 1991 - B. Sc. Mechanical engineering Technion. Computer software, Computer hardeare, Energy and flow.

Conference presentations

Roll torque prediction in solid rocket motors using high order finite volume numerical scheme Hod Wirzberger, Oren Peles IMI SYSTEMS, Eli Turkel, School of Mathematics, Tel-Aviv University, IMPACT2016, Technion.

Large Agglomerates As the Cause of Increased Slag in SRMs Containing

Propellant Loaded with HMX, Solomon Y. Technion, Peles O., Kochav S., Bacher N., Wirzberger H., Sivan J., Dvir S. IMI SYSTEMS, Okon Y. IMOD, IACAS 2017

Conceptual Wind Tunnel Test Series Design by CFD, Wirzberger H., Levi David Elie, Tenenbaum G., Yaniv S. IMI SYSTEMS, IACAS 2015

Solid rocket motor ignition transient phenomenon and pressure buildup CFD simulation, AIAA JPC, AIAA-2007-5795, 2007

Prediction of slag formation in a solid rocket motor, IACAS 2005

Investigation of the soot particle oxidation and its influence on the BEM plume radiation, IACAS 2006

Solid rocket motor ignition simulation using a dual-time step unsteady Navier-Stokes solver, IACAS 2006.

Solid rocket motor ignition transient phenomenon and pressure buildup simulation, IACAS 2007

Investigation of two phase plume flow and the influence of soot oxidation on plume radiation, IACAS 2007

Development of a lagrangian-Eulerian two-phase flow solver based on full Navier-Stokes equations for solid rocket motors, ICME 2005

Prediction of erosion in a solid rocket motor by Alumina particles, AIAA JPC , AIAA2005-4496, 2005.

Prediction of slag formation in a solid rocket motor, AIAA JPC , AIAA-2005-4488, 2005.

H. Wirzberger, M. Shapiro, G. Iosilevskii, A. Khain, M. Pinsky, Droplets collection by a spheroidal particle moving in shear flows. April 2002 IAAR.

“ Measurement of the side force, drag, and moment coefficients governing translational and rotational motion of cylindrical particles” June 2000 ICME 2000 .

“Measurement of the lift and drag coefficients governing translational and rotational motion of cylindrical particles” EAC 99 Prague.

“Prevention of particle deposition by means of heating the deposition surface” EAC 97 Hamburg.

Publications

O. Peles, H. Wirzberger, E. Turkel and S. Yaniv, "Development of an RK/implicit smoother based solver for Eulerian Dispersed Phase (EDP) simulations.", ICME 2012

Hod Wirzberger, Sara Yaniv, Oren Peles, Jonathan Sivan, Jacob Kanelbaum, Boris Shamoelov, Kobi Cohen, Prediction and measurement of IR radiation from jet engine plume, IACAS 2012

H. Wirzberger and S. Yaniv, Solid rocket motor ignition transient phenomenon and pressure buildup CFD simulation, AIAA-2007-5795, 2007.

H. Wirzberger and S. Yaniv, Prediction of erosion in a solid rocket motor by Alumina particles, AIAA-2005-4496, 2005.

H. Wirzberger and S. Yaniv, Prediction of slag formation in a solid rocket motor, AIAA2005-4488, 2005.

H. Wirzberger, Dynamics and coagulation of non spherical particles settling in shear flows, P. Hd. Reseach Thesis, 2004.

H. Wirzberger, M. Shapiro and G. Iosilevskii, Droplets collection by a spheroidal particle moving in a simple shear flow. Proc. of the International Aerosol Conference, Taipei, Taiwan (2002).

H. Wirzberger, M. Shapiro, M. Pinsky, and A. Khain, Statistical properties of volumes swept by non-spherical particles in a turbulent flow, Proc. of the International Aerosol Conference, Taipei, Taiwan (2002).

H. Wirzberger, S. Lektmakher, M. Shapiro and G. Iosilevskii (1999) Measurement of the lift and drag coefficients governing translational and rotational motion of cylindrical particles”, J. of Aerosol Science 30 S1, S539-S540.

H. Wirzberger, Prevention of particle deposition from duct flows by means of heating the deposition surface, M. Sc. Research Thesis ,1999.

H. Wirzberger, S. Lektmakher, M. Shapiro and V. Dudko (1997), Prevention of particle deposition by means of heating the deposition surface, J. of Aerosol Science 28 S1, S83 S84.