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Paper Title: Multiphysics Simulations of Rocket Engine Combustion

Author: Yen-Sen Chen, National Space Organization, Taiwan

Education: Ph.D. Aerospace Engineering, University of Kansas, 1984

Experience:

2005 - Present	Senior Research Fellow, Systems Engineering Division Director & Sounding Rocket Program Manager, NSPO, Taiwan
2006 - Present	AIAA Solid Rocket Technical Committee Member
2006 - 2007	University Satellites and Space Science Education International Advisory Committee Member
1991 - 2005	President & Chief Technical Officer, Engineering Sciences, Inc.
1990 - 1995	Adjunct Professor, ME Dept., Univ. of Alabama in Huntsville
1988 - 1991	Senior Staff Scientist, SECA, Inc.
1984 - 1988	Visiting Scientist, Fluid Dynamics Branch, NASA Marshall Space Flight Center

Research Areas:

- Launch Vehicle Propulsion System and TVC Design Analysis
- Liquid, Solid and Hybrid Rocket Motor Test Support
- Rocket Engine Performance and Plume Radiation Modeling
- Advanced Scramjet, High-Energy and Spacecraft Propulsion Systems
- Computational Fluid Dynamics Methodology Development
- Real-Fluid and Particulate Multiphase Flow Modeling/Applications
- General Two-phase Flow Solution Methods with Interface Fluid/Thermal Mechanics

Technical Awards:

2008	NASA Software-of-the-Year Award Runner-up
2007	NASA MSFC Software-of-the-Year Award
2003	NASA Technical Innovation Award for FDNS code development & pump flow study
2002	NASA Technical Innovation Award for 3-D 3-phase flow modeling
1994	NASA Technical Innovation Award for combustion instability
1994	NASA Technical Innovation Award for reacting flow modeling
1991	NASA Technical Innovation Award for rocket nozzle flow/plume study
1985	NASA Group Achievement Award for SSME internal flow study

Publications:

- Farmer, R. C., Cheng, G. C., **Chen, Y. S.** and Pike, R. W., ***Computational Transport Phenomena for Engineering Analyses***, Taylor & Francis Group, 2009.
- **Chen, Y. S.** and Wang, T. S., "Numerical Modeling of Laser Supported Propulsion with an Aluminum Surface Breakdown Model," in ***1st International Symposium on Beam Energy Propulsion, American Institute of Physics Publication***, 2002.
- **Chen, Y. S.**, "Computation of Space Shuttle High-Pressure Cryogenic Turbopump Ball Bearing Two-Phase Coolant Flow," in ***Thermo-Hydraulics for Space Power, Propulsion, and Thermal Management System Design***, Vol. 122, AIAA, 1989.
- 142 Journal and Conference Papers