

MITSURU KUROSAKA

AREAS OF INTEREST

Advanced Airbreathing Propulsion, Detonation, Aeroacoustics, Thermo-Fluid Mechanics

EDUCATION

Ph.D., Mechanical Engineering, California Institute of Technology, 1968

MS, Mechanical Engineering, University of Tokyo, 1961

BS, Naval Architecture and Marine Engineering, University of Tokyo, 1959

PROFESSIONAL EXPERIENCE

1987-present, Professor of Aeronautics and Astronautics, University of Washington

1979-1987, Professor of Mechanical and Aerospace Engineering, University of Tennessee Space Institute

1984-1985, Visiting Professor, Department of Aeronautics and Astronautics, Massachusetts Institute of Technology (supported in full by the Air Force Office of Scientific Research and MIT)

1977-1979, Associate Professor of Mechanical and Aerospace Engineering, University of Tennessee Space Institute

1969-1977, Fluid Mechanics Engineer, General Electric Research and Development Center

1967-1969, Engineering Specialist, AiResearch Manufacturing Company

1964-1967, Graduate Teaching and Research Assistant, California Institute of Technology

TECHNICAL SOCIETIES

Fellow, ASME: Associate Fellow, AIAA

HONORS & AWARDS

AIAA General H.H.(Hap) Arnold Award, 1983

Professor of the Year, 1993, Department of Aeronautics & Astronautics, University of Washington

CONSULTING

General Electric Company, AiResearch Manufacturing Company (Phoenix), ARO Inc., Calspan Field Services, Pratt-Whitney Canada, Sundstrand Aerospace, Inhale Therapeutic Systems, Northwind Technology.

SERVICES

Committee member “ Air Force and Department of Defense Aerospace Propulsion Needs”, National Academy of Sciences, 2005-2006

SELECTED PUBLICATIONS

1. "[Flow Reversal in Spinning Detonation](#)" (with Viot F, Khasainov B, Desbordes D, Presles H.N.) 17th ISHPMIE Conference, St. Petersburg, Russia, July 11th (2008). ([powerpoint presentation](#))

2. "[Azimuthal vorticity gradient in the formative stages of vortex breakdown](#)" (with C.B. Cain, S.Srigrarom, J.D. Wimer, D. Dabiri, W.F. Johnson, J.C. Hatcher, B.R. Thompson, M. Kikuchi, K.Hirano, T. Yuge and T. Honda) *Journal of Fluid Mechanics* (2006), vol.569, pp.1-28.
3. 'Interchangeability of Vortex Breakdown Types' (with M.Kukuchi, K. Hirano, T. Yuge, and H. Inoue), *Experiments in Fluids*, vol.34, pp.77-86, (2003)
4. "Kidney and anti-kidney vortices in crossflow jets" (with B.A. Haven), *Journal of Fluid Mechanics*, vol.352, pp.27-64, 1997.
5. "Supersonic cooling by shock-vortex interaction" (with M.D. Fox), *Journal of Fluid Mechanics*, vol.308, pp.363-379, 1996.
6. "Hairpin Vortex-Induced Cross Flow Transport" (with J.P. Hagen), *Physics of Fluids*, vol. 5, no. 12, pp. 3167-3173, 1993.
7. "The Influence of Vortical Structures on the Thermal Fields of Jets" (with M.D. Fox, L. Hedges and K. Hirano), *Journal of Fluid Mechanics* , vol. 255, no. 10, pp. 447-472, 1993; *Journal of Fluid Mechanics*, pp. 261(25 February), 1994.
8. "Vortex-Induced Energy Separation in Shear Flows" (with J.J. O'Callaghan),*AIAA Journal* vol. 31, no. 6, pp. 1157-1159 1993.
9. "Energy Separation in a Vortex Street" (with J.B. Gertz, J.E. Graham, J.R. Goodman, P. Sundaram, W.C. Riner, H. Kuroda and W.L. Hankey), *Journal of Fluid Mechanics* , vol. 178, pp. 1-29, 1987.
10. "Illustrative Examples of Streaklines in Unsteady Vortices: Interpretational Difficulties Revisited" (with P. Sundaram), *Physics of Fluids*, vol. 29, no. 10, pp. 3474-77, 1986.
11. "Acoustic Streaming in Swirling Flow and the Ranque-Hilsch Effect," *Journal of Fluid Mechanics*, vol. 124, pp. 139-72, 1982.
12. "Cumulative Nonlinear Distortion of an Acoustic Wave Propagating Through an Inhomogeneous Flow," *Journal of Fluid Mechanics* vol .83, no. 4, pp.751-73 1977.