Kader Frendi

DEGREES

Ph.D. **:** Mechanical Engineering, Brown University, 1990.

M.S. **:** Applied Mathematics, Brown University, 1988.

M.S. **:** Mechanical Engineering, Brown University, 1986.

B.S. **:** Physics, University of Science and Technology Algiers, 1982.

EMPLOYMENT and EXPERIENCE:

2011 to Present: Professor, Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, Huntsville, AL.
2015 to 2016: Professor and Faculty Senate President, Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, Huntsville, AL.
2007 to 2010: Professor and Department Chair, Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, Huntsville, AL.
2005 to 2007: Professor, Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, Huntsville, AL.
1999 to 2005: Associate Professor, Mechanical and Aerospace Engineering Department, University of Alabama in Huntsville, Huntsville, AL.
1990 to 1999: Research Scientist, NASA Langley Research Center, Hampton, VA.
1989 to 1990: Visiting Assistant Professor, Mechanical Engineering Department, Northeastern University, Boston, MA.

HONORS and AWARDS

ASME Fellow, 2015.

AIAA Associate Fellow, 2007.

Associate Editor, Journal of Propulsion and Power, Jan 2008 to 2019.

UAH Faculty Senate President, Academic Year 2015-2016.

UAH Faculty Senate President-Elect, Academic Years 2007-2008 and 2014-2015.

Recipient of the UAH College of Engineering Distinguished Senior Faculty Award, 2016.

Recipient of the UAH Foundation Award for Research and Creative Achievement, March 2004.

Recipient of an award for an Outstanding Performance as Chairman from the Mechanical and Aerospace Engineering faculty and staff, December 2010.

Member of the board of directors for Habitat for Humanity of Madison County 2008-2013.

Recipient of a Certificate of Recognition from NASA Stennis Space Center, July 2006.

Recipient of a Summer Faculty Fellowship from NASA Marshall Space Flight Center, 2004.

Recipient of a Summer Faculty Fellowship from NASA Marshall Space Flight Center, 2000.

Recipient of several Certificates of Appreciation from NASA Langley Research Center for significant contributions to various programs (HSR, Hyper-X, AST), 1999.

Recipient of a graduate scholarship from the Algerian Government to attend Brown University from 1983 to 1989.

Recipient of a Presidential Award for an outstanding performance at the college entrance exam, 1979.

PROFESSIONAL SOCIETIES

AIAA, Associate Fellow.

ASME, Fellow.

Associate Editor for AIAA Propulsion and Power, 2008-2019.

Reviewer for several journals.

Proposal reviewer for NSF, DoD and NASA.

Consultant to local Huntsville, Alabama, Aerospace Commpanies.

REFEREED JOURNAL ARTICLES

- Owen, M., and Frendi, A., "Towards the Understanding of Humpback Whale Tubercles: Linear Stability Analysis of a Wavy Flat Plate," **Fluids** Vol. 5, Issue 4, 212, November 2020. https://doi.org/10.3390/fluids5040212, [UAH]

- Frendi, A., and Harrison, C., "Partially Averaged Navier-Stokes: A (k-ω)/(k-ϵ) Bridging Model," **Fluids**, Vol. 5, Issue 3, 129, August 2020. https://doi.org/10.3390/fluids5030129, [UAH]

- Frendi, A. and Zhang, M. "A New Turbulent Wall-Pressure Fluctuation Model for Fluid-Structure Interaction", **Journal of Vibration and Acoustics**, Vol. 142, No. 2: 021018, April 2020. https://doi.org/10.1115/1.4045771, [UAH]

- F. Ewere, G. Wang, A. Frendi, " Experimental Investigation of Bio-Inspired Bluff Body Effect on Galloping Piezoelectric Energy Harvester Performance,", **AIAA Journal**, Vol. 56, No. 3, Jan 2018, pp. 1284-1287. DOI: 10.2514/1.J056152, [UAH]

- Zhang, M., Thompson, W., Frendi, A., Casiano, M.J., "Acoustic Wave Propagation in a Sensor Port: Experimental Measurements and Analytical Model Predictions," **Journal of Applied Acoustics**, Vol. 127, 2017, pp. 1-14. [UAH]

- Olatoyinbo, S. F., Rani, S., Frendi, A. "Large-Eddy Simulation of Decaying Isotropic Turbulence using the Flowfield Dependent Variation Method," **International Journal of Numerical Methods for Heat & Fluid Flow,** Vol. 27, Issue 1, 2017, pp. 235-262. [UAH]

- Brown, M.R., Frendi, A., "Flow Structures and Noise from a Supersonic Impinging Jet", **International Journal of Numerical Methods for Heat & Fluid Flow,** Vol. 26, No. 8, 2016, pp. 1-20. DOI 10.1108/HFF-05-2015-0174. [UAH]

- Girgis, B., Rani, S., and Frendi, A., "Flowfied Dependent Variation: A Unified Scheme for the Solution of Incompressible and Compressible Flow Problems", **International Journal of Numerical Methods for Heat & Fluid Flow**, Vol. 26, No. 5, 2016, pp. 1486-1525. DOI 10.1108/HFF-04-2015-0137. [UAH]

- Man Zhang, and Frendi, A., "Effect of Airfoil Leading Edge Waviness on Flow Structures and Noise", **International Journal of Numerical Methods for Heat & Fluid Flow,** Vol. 26, No. 6, pp. 1-23, 2016. DOI 10.1108/HFF-04-2015-0143. [UAH]

- Zhang, M., and Frendi, A., "Noise Generated by an Airfoil Located in the Wake of a Circular Cylinder", **Progress in Hybrid RANS-LES Modeling**, by Springer, Edited by Sharath Girimaji, Werner Haase, Shia-Hui Peng and Dieter Schwamborn, pp. 493-501, 2015. [UAH]

- Frendi, A., ""Hybrid RANS-LES Methods Applied to Acoustic Problems", **Progress in Hybrid RANS-LES Modeling, by Springer**, Edited by Sharath Girimaji, Werner Haase, Shia-Hui Peng and Dieter Schwamborn, pp. 243-251, 2015. [UAH]

- Hahn, V. P., Frendi, A., "Interaction of 3D Protuberances with a Supersonic Turbulent Boundary Layer", **AIAA Journal**, Vol. 51, No. 7, pp. 1657-1666, July 2013. [UAH]

- Peugeot, W. J., Frendi, A., "Towards the Understanding of Flow Induced Vibration in a Rocket Engine Manifold", **Journal of**

Propulsion and Power, Vol. 29, No. 6, pp. 1468-1477, September 2013. [UAH]

- Fisher, A., Frendi, A., and Christopher, S.A., "Using Satellite Remote Sensing to Monitor Rocket Launch Induced Pollution", **International Journal of Remote Sensing**, Vol. 34, No. 1, January 2013, pp 60-72. [UAH]

- Al Musleh, A., and Frendi, A., "On the Effect of a Flexible Structure on Boundary Layer Stability and Transition", **Journal of Fluids Engineering**, Vol. 133, No. 7, July 2011, pp. 071103-1 to 071103-6. [UAH]

- Dunn, M.C., Shotorban, B., and Frendi, A., "Uncertainty Quantification of Turbulence Model Coefficients via Latin Hypercube Sampling Method", ***Journal of Fluids Engineering***, Vol. 133, No. 4, April 2011, pp. 041402-1 to 041402-7. [UAH]

- Frendi, A., Tosh, A., Girimaji, S." Flow Past a Backward Facing Step: Comparison of PANS, DES and URANS Results with Experiments", ***International Journal of Computational Methods in Engineering Science and Mechanics***, Vol. 8, Issue 1, pp. 23-38, 2006. [UAH]

- Canabal, F., Frendi, A.,"Study of the Ignition Over-Pressure Suppression Technique by Water Addition", ***Spacecraft and Rockets***, Vol. 43, No. 4, pp. 853-865, 2006. [UAH]

- Abhijit, T., Frendi, A.,"Effect of Decoupled Fluid Loading on Nonlinear Vibration of a Flat Plate", ***Journal of Fluids & Structures***, Vol. 19, pp. 1117-1128, 2004. [UAH]

- Buhler, W. and Frendi, A.,"Effect of Fluid Wall Shear Stress on Nonlinear Beam Vibration", ***Journal of Sound and Vibration***, Vol. 270 (4-5), pp. 793-811, 2004. [UAH]

- Frendi, A.,"On Flow Unsteadiness Induced by Structural Vibration", ***Journal of Sound and Vibration***,Vol. 269, No. 1, pp. 327-343, Jan. 2004. [UAH]

- Frendi, A., Dorland, W.D., Maung, T., Nesman, T. and Wang, T.-S, "A Jet Engine Noise Prediction/Measurement Tool", ***Journal of***

Acoustical Society of America, Vol. 112,No. 5, Pt. 1, Nov. 2002. [UAH]

- Frendi, A.,"Accurate Surface Temperature Prediction at High Speeds", ***Numerical Heat Transfer Part A: Applications***, Vol. 41, No. 5, pp. 547-554, April 2002. [UAH]

- Frendi, A., Nesman, T. and Wang, T.-S, "On the Effects of Time Scaling on the Noise Radiated by an Engine Plume", ***Journal of Sound and Vibration***,Vol. 256, No. 5, pp. 969-979, October 2002. [UAH]

- Cockrell Jr., Engelund, W. Bittner, R., Dilley, R., Jentink, T. and Frendi, A., "Integrated Aero-Propulsive CFD Methodology for the Hyper-X Flight Experiment", ***Journal of Spacecraft and Rockets***, Vol. 38, No. 6, pp. 836-843, November-December 2001. [UAH]

- Frendi, A., Nesman, T. and Wang, T.-S, "A Computational and Experimental Study of the Linear Aerospike Engine Noise", ***AIAA Journal***, Vol. 39, No. 8, pp. 1485-1492, August 2001. [UAH]

- Frendi, A., "On the Effects of Wall Shear Stress on Structural Vibrations", ***AIAA Journal***, Vol. 39, No. 4, pp. 737-740, April 2001. [UAH]

- Frendi, A., "On the Coupling Between a Supersonic Turbulent Boundary Layer and a Flexible Structure", ***AIAA Journal***, Vol. 35, No. 1, pp. 58-66, January 1997. [NASA]

- Frendi, A. and Maestrello, L., "On the Combined Effect of Mean Flow and Acoustic Excitation on Structural Response and Radiation", ***Journal of Vibration and Acoustics***, Vol. 119, pp. 448-456, July 1997. [NASA]

- Frendi, A., Maestrello, L., and Ting, L., "An Efficient Model for Coupling Structural Vibration with Acoustic Radiation", ***Journal of Sound and Vibration***, Vol. 182, No. 5, pp. 741-757, 1995. [NASA]

- Frendi, A., Maestrello, L., and Bayliss, A., "Coupling Between Plate Vibration and Acoustic Radiation", ***Journal of Sound and Vibration***, Vol. 177, No. 2, pp. 207-226, 1994. [NASA]

- Frendi, A., and Robinson, J., "On the Effect of Acoustic Coupling on Random and Harmonic Plate Vibrations", ***AIAA Journal***, Vol. 31, No. 11, pp. 1992-1997, 1993. [NASA]

- Frendi, A., Maestrello, L., and Bayliss, A., "On the Coupling Between a Supersonic Boundary Layer and a Flexible Surface", ***AIAA Journal***, Vol. 31, No. 4, pp. 708-713, 1993. [NASA]

- Maestrello, L., Frendi, A., and Brown, D.E., "Nonlinear Vibration and Radiation from a Panel Structure with Transition to Chaos Induced by Acoustic Waves", ***AIAA Journal***, Vol. 30, No. 11, pp. 2632-2639, 1992. [NASA]

- Frendi, A., and Sibulkin, M., "Extinction of Methane-Air Mixtures by Nitrogen Dilution", ***Combustion and Flame***, Vol. 86, pf. 185, 1991. [NEU]

- Chen, Y., Frendi, A., Tewari, S.S., and Sibulkin, M., "Combustion Properties of Pure and Fire Retarded Cellulose", ***Combustion and Flame***, Vol. 84, pf. 120, 1991. [BrownU]

- Frendi, A., and Sibulkin, M., "Dependence of Minimum Ignition Energy on the Ignition Parameters", ***Combustion Science and Technology***, Vol. 73, pf. 395, 1990. [BrownU]

- Sibulkin, M., and Frendi, A., "Prediction of a Lean Flammability Limit for a Premixed Gas in an Unconfined Medium", ***Combustion and Flame***, Vol. 82, pf. 334, 1990. [BrownU]

NASA / ICASE / INDUSTRY PULICATIONS

- Frendi, A., Man Zhang and Wayne Thompson, “Testing and Analysis of Sensor Ports”, NASA/TP-2016-218222, May 2016.

- Frendi, A., “Impact of Hypersonic Flight Environment on Electro-Optic/Infrared Sensors (EO/IR)”, Phase I Final Report, April 2016.

- Frendi, A. and Girgis, B., “A High Order Accuracy Computational Tool for Unsteady Turbulent Flows and Acoustics”, SBIR Phase I Final Report, September 2011.

- Girimaji, S., Frendi, A., “Computations of Separated High-Enthalpy Hypersonic Flows: Development of RANS and Variable-Resolution PANS Approaches”, SBIR Phase I Final Report, September 2011.

- Frendi, A., Brown, M., “Computational Fluid Dynamics Analysis of Various Acoustic Igniter Geometries”, Phase II SBIR Final Report, March 2011.

- Frendi, A. “Noise Source Identification for a Husqvarna Lawn Mower”, Husqvarna Phase I Final Report, March 2011.

- Sheta, E., and Frendi, A., "High Order Wavelet-Based Multiresolution Technology for Airframe Noise Prediction ", SBIR Phase II Final Report/TM, December 2006.

- Frendi, A., "Prediction and Control of the Vibroacoustic Environment During a Launch Sequence" ", SBIR Phase I Final Report, July 2006.

- Frendi, A., "Control of Combustion Instability Through Various Passive Devices" ", *NASA Contractor Report*, 2005-213847.

- Essam Sheta, A. Frendi, "High Order Wavelet-Based Multiresolution Technology for Airframe Noise Prediction ", *SBIR Phase I Final Report/TM* , CFDRC Report 8620/3.

- W. Dorland and A. Frendi, "Acoustic Prediction and Measurement Tool ", *SBIR Phase I Final Report* , 2001.

- Frendi, A., and Vu, B., "On the Propagation of Plane Acoustic Waves in a Duct with a Flexible and Impedance Walls ", *NASA/TM* , 2003-211185.

- Dorland, W., and Frendi, A., "Acoustic Prediction and Measurement Tool ", *SBIR Phase II Final Report* , 2003.

- Frendi, A., "Development of an Empirical Model for the X-33 Linear Aerospike Engine Noise ", *NASA Contractor Report*, 2001-210797.

- Frendi, A., "On the Effects of Sideslip on the Hyper-X Stability and Control", *NASA Contractor Report*, 2001.

- Frendi, A., "2D Viscous and 3D Inviscid Computations in Support of the Flush Air Data Sensor Experiments (FADS)", *NASA/CDCR-10025*, November 1999.

- Frendi, A., "Effects of Pressure Gradients on Plate Response and Radiation in a Supersonic Turbulent Boundary Layer", *NASA-CR-201691*, 1997.

- Frendi, A., "On the Coupling Between a Supersonic Turbulent Boundary Layer and a Flexible Structure", *NASA-CR-201631*, 1996.

- Frendi, A., and Robinson, J., "On the Effect of Acoustic Coupling on Random and Harmonic Plate Vibrations", *NASA-TM-107740*, 1993.

- Frendi, A., Maestrello, L., and Ting, L., "An Efficient Model for Coupling Structural Vibration with Acoustic Radiation", *ICASE Report 93-18*, April 1993.

- Frendi, A., Maestrello, L., and Bayliss, A., "Numerical Study of Flow/Structure Interaction Over a Flexible Plate", *Computational Aeroacoustics*, Eds. J.C. Hardin and M.Y. Hussaini, Springer-Verlag, New York, pp. 404-416, 1993.

- Frendi, A., Maestrello, L., and Bayliss, A., "On the Coupling Between a Supersonic Boundary Layer and a Flexible Surface", *ICASE Report 92-42*, Sept. 1992.

- Frendi, A., Maestrello, L., and Bayliss, A., "Coupling Between Plate Vibration and Acoustic Radiation", *ICASE Report 92-67*, Dec. 1992.

- Frendi, A., Maestrello, L., and Bayliss, A., "Outgoing Acoustic Waves in an Unstable Supersonic Laminar Boundary Layer Over a Flexible Surface", *Instability, Transition and Turbulence*, Eds. M.Y. Hussaini, A. Kumar and C.L. Streett, Springer-Verlag, New York, pp. 337-342, 1992.

CONFERENCE PRESENTATIONS

- Zhang, M., and Frendi, A., “A New Semi-Empirical Model for Turbulent Wall-Pressure Fluctuations”, Presented at ICCFD10 Conference in Barcelona, Spain, July 2018.

- Owen, M., and Frendi, A., “Crossflow Stability of a Swept Flat Plate with Wavy Leading Edge”, presentated at the AIAA Aviation Forum, Atlanta, GA, June 2018.

- Man Zhang and Abdelkader Frendi, “Bioinspired Passive Control of Airfoil Radiated Noise”, AIAA-2016-2835 presented at the 22nd AIAA/CEAS Aeroacoustics Conference, Lyon, France, May 30th-June 1st, 2016.

- Ewere, F., Wang, G., and Frendi, K. “Galloping Piezoelectric Energy Harvester with Bio-inspired Square Bluff Body”, presented at the Orlando Florida SciTech2015 Conference.

- Frendi, A., ““Hybrid RANS-LES Methods Applied to Acoustic Problems”, Progress in Hybrid RANS-LES Modeling, by Springer, Edited by Sharath Girimaji, Werner Haase, Shia-Hui Peng and Dieter Schwamborn, pp. 243-251, 2015

- Zhang, M., and Frendi, A., “Noise Generated by an Airfoil Located in the Wake of a Circular Cylinder”, Progress in Hybrid RANS-LES Modeling, by Springer, Edited by Sharath Girimaji, Werner Haase, Shia-Hui Peng and Dieter Schwamborn, pp. 493-501, 2015.

- Frendi, A., and Hahn, P.V., “Pressure Fluctuations in the Vicinity of a Wall-Mounted Protuberance”, Fluid-Structure-Sound Interactions and Control, Proceedings of the 2nd Symposium of Fluid-Structure-Sound Interactions and Control, Yu Zhou, Yang Liu, Lixi Huang and Dewy H. Hodges, Editors, Hong Kong-Macau, May 20-23, 2013, published by Springer, pp. 51-55.

- Cavender, D.P., Mireles, O.R., Broadway, J.W., and Frendi, A., “Design of Uranium-Dioxide Plasma Spheroidization System”, submitted to the Proceedings for Nuclear Technologies for Space, Albequerque, NM, February 2013.

- Peugeot, J.W., and Frendi, A., “Flow Induced Vibrations in Rocket Engine Manifold”, AIAA-2012-2170.

- Hahn, P.V., and Frendi, A., “On the Interaction of 3D Protuberances with a Supersonic Turbulent Boundary Layer”, AIAA-2012-2172.

- Brown, M.R., and Frendi, A., " Supersonic Jet Impingement on a Flat Plate", AIAA-2012-2261.
- Dunn, M.C., Shotorban, B., and Frendi, A., "Uncertainty Quantification of Turbulence Model Coefficients via Latin Hypercube Sampling Method", ASME paper FEDSM-ICNMM2010-30572.
- Owen, M. and Frendi, A. "A Semi-Empirical Noise Model Derived Using the Energy Spectrum ",AIAA-2009-3164.
- Frendi, A. and Sun, Y. "Noise Radiated from Two Cylinders in Tandem Arrangement Using High-Order Multidomain Spectral Difference Method ",AIAA-2009-3159.
- Hood, C. and Frendi, A. "A Two Dimensional Cartesian and Axisymmetric Study of Combustion-Acoustic Interaction ",AIAA-2006-5231.
- Frendi, A. and Zreik, M. "Application of the Partially-Averaged Navier-Stokes Method to the Tandem Cylinder Problem ",AIAA-2006-3204.
- Frendi, F. and Vu, B. "On the Propagation of Plane-Acoustic Waves in a Duct with Flexible and Impedance Walls ",AIAA-2006-2691.
- Burgess, B. and Frendi, A. "Nonlinear Vibration of Clamped 2024-T3 Aluminum Panels Subject to High Intensity Noise ",AIAA-2006-2661.
- Sheta, E., Tosh, A., and Frendi, A. "Multiresolution Methodology for Tandem Cylinder Noise ",AIAA-2006-3205.
- Hood, C. and Frendi, A. "On the Interaction of a Premixed Flame with an Acoustic Disturbance ",AIAA-2005-4304.
- Frendi, A., Nesman, T. and Canabal, F., "Control of Combustion Instabilities Through Various Passive Devices ",AIAA-2005-2832.
- Tosh, A., Frendi, A., Girimaji, S., "Partially Averaged Navier-Stokes: A New Turbulence Model for Unsteady Flows with Application to Acoustics ", AIAA-2005-2987.

- Sheta, E., Frendi, A., "Wavelet-Based Adaptive Multiresolution Methodology for Airframe Noise Prediction ", AIAA-2005-3056.

- Canabal, F., Frendi, A., "On the Suppression of Ignition OverPressure Generated by Launch Vehicles ", AIAA-2004-2833.

- Frendi, A., "Passive Control of Combustion Instabilities ", AIAA-2004-2930.

- Saxena, A., Frendi, A., "Effect of Equivalence Ratio on Combustion Instabilities ", AIAA-2004-2931.

- Tosh, A., Frendi, A., "Prediction of Noise Radiated by a Smooth-Square Cylinder ", AIAA-2004-2914.

- Limon-Duparmeur, F.M., Frendi, A., "Self and Shear Noise Model For An Axisymmetric Jet ", presented at the EUROMECH 449 Chamonix, France, December 2003.

- Frendi, A., Tosh, A. and Girimaji, S.S. "Comparison of DES, URANS and PANS Results for a Smooth Square Cylinder ", presented at the 54th APS Fluid Dynamics Meeting, East Rutherford, New Jersey, USA, November 2003.

- Canabal, F., Frendi, A., "On the Suppression of Ignition Over-Pressure Generated by Launch Vehicles ", AIAA-2003-3329.

- Canabal, F., Frendi, A., "A Finite Element Based Flux Correction Scheme for the Euler Equations ", AIAA-2003-3121.

- Frendi, A., "On the Role of Acoustic Coupling on Combustion Instabilities ", AIAA-2003-3181.

- Limon-Duparcmeur, F., Frendi, A., "Prediction of the Noise Radiated by an Engine Plume ", presented at the 2003 JANNAF 27th Exhaust Plume Technology Subcommittee NASA Stennis Space Center, Stennis, MS, May 2003.

- Al Musleh, A., Frendi, A., "On the Effects of Flexible Structures on Boundary Layer Stability ", AIAA-2003-3222.

- Canabal, F., Frendi, A., "A Computational Study of Ignition Over-Pressure For Launch Vehicles ", AIAA 2002-2541.

- Buhler, W., Frendi, A. "Effects of Fluid Wall Shear Stress on Nonlinear Vibration and Acoustic Radiation", AIAA 2002-2415.

- Frendi, A., Nesman, T. and Wang, T.-S, "On the Effect of Time Scaling on the Noise Radiated by an Engine Plume", AIAA paper 2001-1880

- Cockrell, Jr., Engelund, W., Bittner, R., Dilley, R., Jentink, T., and Frendi, A., "Integrated Aero-Propulsive CFD Methodology for the Hyper-X Flight Experiment", AIAA-paper 2000-4010.

- Frendi, A., "A Fully Coupled Flow-Heat Transfer Model for Accurate Prediction of Wall Temperature", AIAA paper 2000-3847.

- Frendi, A., "On the CFD Support for Hyper-X Aerodynamic Database", AIAA paper 1999-0885.

- Frendi, A., "Powered and Unpowered Sideslip CFD Results for the Mach 7 Hyper-X Vehicle", JANNAF Conference, Tucson, AZ, 1998.

- Frendi, A., "On the Coupling Between a Supersonic Turbulent Boundary Layer and a Flexible Structure", 34th AIAA Conference and Exhibit, Reno, Nevada, 1996.

- Frendi, A. and Maestrello, L., "On the Combined Effect of Mean Flow and Acoustic Excitation on Structural Response and Radiation", ASME Winter Annual Meeting, Chicago, IL, 1994.

- Frendi, A., Maestrello, L, Robinson, J., and Bayliss, A., "On Acoustic Radiation From a Vibrating Panel", AIAA paper 1993-4367.

- Frendi, A., Maestrello, L., and Bayliss, A., "Coupling Between Plate Vibration and Acoustic Radiation", AIAA paper 1993-0603.

- Frendi, A., Maestrello, L., and Bayliss, A., "On the Coupling Between a Supersonic Boundary Layer and a Flexible Surface", AIAA paper 1992-02-009.

- Maestrello, L., Frendi, A., and Brown, D.E., "Nonlinear Vibration and Radiation from a Panel Structure with Transition to Chaos Induced by Acoustic Waves", AIAA paper 1992-02-071.

- Frendi, A. and Sibulkin, M., "Lean Flammability Limit for Methane-Air Mixtures at Zero Gravity", Eastern Section of the Combustion Institute, RPI, New York, 1989.

INVITED PRESENTATIONS

- **Kader Frendi** and Phil Ligrani, "Application of Hybrid RANS-LES to Unsteady Shock-Wave Boundary Layer Interactions in the Presence of a Surface Mounted Protuberance", to be presented at the 9th Annual Shock Wave/Boundary Layer Interaction (SWBLI) Technical Interchange Meeting, May 24-25, 2016, Cleveland, Ohio, USA.

- Phil Ligrani and **Kader Frendi**, "New Experimental Wind Tunnel Research Capabilities at UAH for Investigation of Shock-Wave-Boundary-Layer-Interactions" to be presented at the 9th Annual Shock Wave/Boundary Layer Interaction (SWBLI) Technical Interchange Meeting, May 24-25, 2016, Cleveland, Ohio, USA.

- **Kader Frendi**, "Acoustic Wave Propagation in a Sensor Port: Measurements and Analytical Model Predictions", presented in the Aerospace Engineering Department Seminar Series of Texas A&M University, on November 19th, 2015, College Station, Texas.

- **Kader Frendi,** "Vibration Testing of Space Bound Hardware", Algerian Space Agency (ASAL), Algiers, Algeria, February 4th, 2013.

- **Kader Frendi**, "Application of CFD to Unsteady Turbulent Flows and Acoustics", presented in the Aerospace and Materials Department at the University of Alabama, February 24th, 2011.

- **Kader Frendi**, "A High Order Accuracy Computational Tool for Unsteady Turbulent Flows and Acoustics", presented at NASA AMES Research Center, September 2011.

- **Kader Frendi**, "Computation of Unsteady Flows with Application to Acoustics", presented in the Aerospace Engineering Department of Auburn University, October 19th, 2011.

- **Kader Frendi**, "Computation of Unsteady Flows with Application to Acoustics" Presented in the MAE department of the University of Florida, November 8th, 2011.

- **Kader Frendi**, "Computation of Unsteady Flows with Application to Acoustics", presented in the Physics Department of the University of Algiers, Algeria, December 7th, 2011.

SPONSORED RESEARCH

- Subject Area: Fluid/Structure/Acoustic Interactions, Office of Naval Research, 2000-2004, **$250 000.**

- Subject Area: Initiation and Suppression of Launch Vehicle Blast Waves, NASA Langley Research Center, 2000-2004, **$170 249.**

- Subject Area: Noise Radiated by Engine Plumes, Phase I and Phase II SBIR with ASRI Inc. from NASA Marshall and NASA Stennis, 2001-2004, **$670 000**.

- Subject Area: Combustion Instabilities in Rocket Engines, NASA Marshall Space Center, 2002-2009, **$600,000.0.**

- Subject Area: Vehicle Health Monitoring for Aviation Safety, NASA Langley Research Center, 2002-2003, **$950,000.0.**

- Subject Area: Accurate predictions of surface pressure fluctuations near the trailing edge of a swept-wing airfoil. NASA Langley Research Center, 2004-2007, **$200,000.0.**

- Subject Area: Wavelet Based Multiresolution Scheme for Aero-acoustic Computations. NASA Langley Research Center, 2003-2006, **$670,000.0.**

- Subject Area: Using CFD to understand and design Acoustic Igniters. Orion Propulsion Incorporated, 2009-2011, **$130,000.**

- Subject Area: Effect of Protuberances on Wall Pressure Fluctuations, The Boeing Company, 2009-2010, **$100,000.**

- SBIR Phase I: Development of High Order Schemes for Turbulence and Acoustic Applications, 2011, **$70,000.**

- SBIR Phase I: Extension of PANS Turbulence Model to Hypersonic Flows, 2011, **$70,000.**

- SBIR Phase II: Development of High Order Schemes for Turbulence and Acoustic Applications, 2011, **$600,000.**

- NASA Contract: Develop a semi-empirical model for a transfer function between in the inlet and exit of sensor port, 2013-2014, **$75,000.**

- STTR Phase I: Impact of Hypersonic Flight Environment on Electro-Optic Infrared Sensors (EO/IR), 2015-2016, **$60,000.**

- FBI Contract, Support Fundamental Research, **$2,400,000** of which **$240,000** if for my own research effort.

GRADUATE STUDENTS

Werner Buhler, MS, "Analysis and Suppression of Nonlinear Beam Vibrations", 2002.

Ashraf Al Musleh, MS, "On the Effect of a Flexible Structure on Boundary Layer Stability and Transition", 2002.

Abhijit Tosh, MS, "Effect of Decoupled Fluid Loading on Nonlinear Vibration of a Flat Plate", 2004.

Aditi Saxena, MS, "Interaction of a Premixed Flame with an Acoustic Disturbance", 2004.

Brent Burgess, MS, "Nonlinear Vibration of Clamped 2024-T3 Aluminum Panels", 2004.

Vinod Venugopalan, MS, “Effects of a Compliant Wall on the Reflection of Shock Waves Using an ENO Scheme”, 2005.

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