American Academy of Mechanics

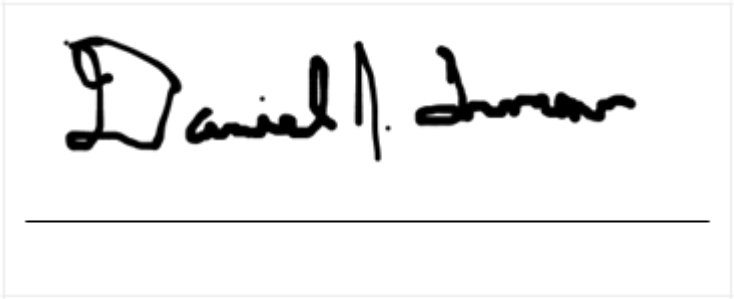
2017 AAM Fellow Nomination

Peyman Givi

Citation: For pioneering contributions in subgrid-scale modeling and large-scale simulation of turbulent reactive flows.

First Nominator: Mohamed Gad-el-Hak
Email: gadelhak@vcu.edu
Signature:

Second Nominator: Daniel Inman
Email: daninman@umich.edu
Confirm: Yes
Signature:



Peyman Givi
Distinguished Professor of Mechanical Engineering
University of Pittsburgh

Education:

- Carnegie Mellon University, Pittsburgh, PA. Mechanical Engineering, Ph.D. and MS. (1984, 1982).
- Youngstown State University, Youngstown, OH. Mechanical Engineering, B.E. *Summa Cum Laude* (1980).

Appointments:

- University of Pittsburgh: Distinguished Professor (2015-present), James T. MacLeod Professor (2010-present), William K. Whiteford Professor (2002-2010). Mechanical Engineering & Petroleum Engineering.

- State University of New York at Buffalo: UB Distinguished Professor (2001-2002), Professor (1993-2001), Associate Professor (1991-1993), Assistant Professor (1988-1991), Aerospace Engineering.

- Flow Industries Inc. (Kent, WA): Applied Mechanics Division, Research Scientist (1985-1988).

Selected Service Activities:

- Deputy Editor: *AIAA Journal* (2010-present). Associate Editor: *Journal of Applied Fluid Mechanics* (2005-presents), and *AIAA Journal* (1998-2009).
- Editorial Boards: *Computers & Fluids* (1993-present), *Journal of Combustion* (2006-present), *Open Aerospace Engineering Journal* (2007-2014), and *Progress in Energy and Combustion Science* (1996-2004).
- Co-Chair: 66th Annual Meeting of the Division of Fluid Dynamics of the APS, Pittsburgh, PA, November 2013. Chair or Member of Organizing Committees of over a dozen other national & international conferences.
- Led activities to implement FDF in the following fluid dynamics solvers: FLUENT/ANSYS commercial code, the VULCAN code (of NASA), and the US3D code (of US Air Force).
- Furnished research results (of DNS & LES) for covers & sleeves of several textbooks.
- Co-Founder and Co-Director, PhD in Computational Modeling & Simulation at Pitt (2012-present).
- Featured in *ASEE-NASA Recruitment Video*: Role Model for Junior Professors (2000).
- Offered over 30 short courses worldwide in various aspects of modeling and simulation.
- Founder and current Advisor of AIAA Chapter at Pitt, and Representative of Pitt at USRA (2007-present).

Honors & Awards:

- Promoted to Distinguished Professor at University of Pittsburgh (2015).
- Promoted to Distinguished Professor at SUNY-Buffalo (2001).
- ASME Engineer of the Year in Pittsburgh (2007).
- NASA Public Service Medal. Highest Non-Civil Service Award by NASA (2005).
- Distinguished Alumnus, Youngstown State University (2004).
- Professor of the Year Award, School of Engineering and Applied Sciences, SUNY-Buffalo (2001-2002).
- Invited Tour, Midwest Mechanics Lecture Series (2009-2010).
- The White House Presidential Faculty Fellowship, by President George H.W. Bush (1992-1995).
- Office of Naval Research Young Investigator Award (1990-1993).
- Presidential Young Investigator Award, National Science Foundation (1990-1992).
- KOPPERS Scholarship (1979-1980).
- Boeing D-Brass Certificate of Appreciation, the Boeing Company, Huntington Beach, CA (2013).
- Fellow of AAAS, AIAA, APS and ASME.

Former PhD & Postdoctoral Students:

1. Dr. Virgil Adumitroaie: Research Scientist, Jet Propulsion Lab., NASA/Caltech, Pasadena, CA.
2. Dr. Naseem Ansari: Research Scientist, ANSYS/Fluent Inc., Canonsburg, PA.
3. Dr. Paul J. Colucci: Aero/Thermo Staff Engineer, Pratt & Whitney, East Hartford, CT.
4. Dr. Tomasz G. Drozda: Research Scientist, NASA Langley Research Center, Hampton, VA.
5. Dr. Steven H. Frankel: Professor, Purdue University and Technion University. *ONR-YI Awardee.*
6. Dr. Sean C. Garrick: Professor, University of Minnesota. *ONR HBECC Fellow.*
7. Dr. Laurent Y.M. Gicquel: Research Scientist, CERFACS, Toulouse, France.
8. Dr. Farhad A. Jaberi: Professor, Michigan State University. *NSF-CAREER & ONR-YI Awardee*.
9. Dr. Sunil James: Program Manager, Honeywell Corp., Phoenix, AZ.
10. Dr. Tai-Lun Jiang: Research Engineer in Taiwan. Affiliation unknown.
11. Dr. Cyrus K. Madnia: Professor, SUNY at Buffalo. *NSF-CAREER Awardee*.
12. Dr. Farzad Mashayek: Department Head, U. Illinois at Chicago. *NSF-CAREER & ONR-YI Awardee*.
13. Dr. Richard S. Miller: Associate Professor, Clemson University. *NSF-CAREER Awardee*.
14. Dr. Cristian R. Nastase: Research Engineer, Rolls-Royce, Indianapolis, IN.
15. Dr. Mehdi B. Nik: Data Scientist, Omniscience Inc., Palo Alto, CA.
16. Dr. Arash G. Nouri: Postdoctoral Fellow, University of Pittsburgh.
17. Dr. Collin C. Otis: Big Data Business Intelligence, Uber Corporation, Pittsburgh, PA.
18. Dr. Patrick H. Pisciuneri: Data Analytic, Target Corporation, Pittsburgh, PA.
19. Dr. Shervin Sammak: Research Assistant Professor, University of Pittsburgh.
20. Dr. M. Reza H. Sheikhi: CEO, Dena Scientific, Boston, MA.
21. Dr. Craig J. Steinberger: Enterprise Support Engineer, Github Corp., Rochester, NY.
22. Dr. S. Levent Yilmaz: Research Scientist, MathWorks Inc., Boston, MA.

Ten Sample Publications: i-10 index: 62, h-index: 31, total citations: over 4300

1. One of the most comprehensive subgrid scale models developed to-date: Nouri *et al.*, "Self- Contained Filtered Density Function," *Phys. Rev. Fluids*, 094603 (2017).

2. Introducing quantum computing to the aerospace community: Xu *et al.*, "A Quantum Algorithm for Turbulence Mixing Simulation," *AIAA J.*, in press (2017).

3. An early comprehensive review on DNS of reactive flows (over 270 citations): P. Givi, "Model- Free Simulations of Turbulent Reactive Flows," *Prog. Energy Combust. Sci.*, **15**, 1–107 (1989).

4. An invited survey on FDF (over 120 citations): P. Givi, "Filtered Density Function for Subgrid Scale Modeling of Turbulent Combustion," *AIAA J.*, **44**(1), 16–23 (2006).

5. Original paper on FDF (over 450 citations): Colucci *et al.*, "Filtered Density Function for Large Eddy Simulation of Turbulent Reacting Flows," *Phys. Fluids*, **10**(2), 499–515 (1998).

6. (Over 300 citations): Jaberi *et al.*,"Filtered Mass Density Function for Large Eddy Simulation of Turbulent Reacting Flows," *J. Fluid Mech.*, **401**, 85–121 (1999).

7. First LES of a complex flame via FDF (Over 190 citations): Sheikhi *et al.*, "Large Eddy Simu- lation of Sandia Flame D," *Proc. Combust. Inst.*, **30**, 549-556 (2005).

8. FDF for hydrodynamics LES (Over 170 citations): Gicquel *et al.*, "Velocity Filtered Density Func- tion for LES of Turbulent Flows," *Phys. Fluids*, **14**(3), 1196-1213 (2002).

9. Significant medical applications (Over 130 citations): Miller *et al.*, " Numerical Simulation of Non-Circular Jets," *Comput. & Fluids*, **24**(10), 1–25 (1995).

10. Co-editor of Book (ISBN 5-89055-006-3): *Advanced Computation & Analysis of Combustion* (1997).