Hassan M. Nagib
John T. Rettaliata Professor of Mechanical and Aerospace Engineering, IIT,
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Education

- B.S. (June 1968), Mechanical & Aerospace Engineering,
  Illinois Institute of Technology (IIT)
- M.S. (June 1969), Mechanical & Aerospace Engineering,
  Illinois Institute of Technology (IIT)

and

- Ph.D. (December1972), Mechanical & Aerospace Engineering,
  Illinois Institute of Technology (IIT)

Academic experience

- Illinois Institute of Technology:
  - John T. Rettaliata Professor of Mechanical and Aerospace Engineering, May 1981 – Present
  - Professor, August 1979 – May 1981
  - Associate Professor, August 1975 – August 1979
  - Assistant Professor, January 1973 - August 1975
  - Instructor, January 1970 – December 1972
- Other academic experience:
  - Founding Director of Fluid Dynamics Research Center, IIT, 1978-1999
  - Visiting Professor, Mechanical Engineering Department, Stanford University, 1981
  - Visiting Professor, GALCIT, California Institute of Technology, 1982
  - Chairman of MAE Department, IIT, 1985- 1995
  - Vice President of Main Campus and Dean of Armour College, IIT, 1995- 1998
  - Chief Scientist for IIT Research Institute (IITRI), 1998- 2001
  - Visiting Professor, Dept. of Mech., KTH (Royal Tech. Inst.), Stockholm, Sweden, 1999
  - Visiting Professor, LSTM, Friedrich-Alexander University, Erlangen, Germany, 1999-2000
  - Visiting Professor, LMF, EPFL, Lausanne, Switzerland, 2000-2007
  - Visiting Fellow, Graduate Aeronautical Lab, California Institute of Technology, 2002
  - Affiliated Professor, Dept. of Mech., KTH (Royal Tech. Inst.), Stockholm, Sweden, 2008-2010
  - Honorary Faculty & Tewkesbury Fellow, Dept. of Mech. Eng., U. of Melbourne, Australia, 2016, 2018, 2020
  - Regular Visiting Faculty at University of Bologna, Forli, Italy, 2004-2023
  - Visiting Faculty at Kink Abdullah University of Science and Technology (KAUAT), Saudi Arabia, 2022, 2023, 2024

Field of Specialization
Dr. Nagib received all his degrees in Mechanical and Aerospace Engineering. His research interests are in fluid mechanics, particularly the areas of hydrodynamic stability and transition, applied turbulence, unsteady flows, separated flows, wind engineering and atmospheric diffusion, aeroacoustics, and convection heat transfer, with emphasis on management and control of flows and high Reynolds number wall-bounded turbulence.

Non-academic experience
- Member Board of Governors, Al-Ghurair University, Dubai
- Consultant to Boeing, NASA, Several International Universities, among others.
- Board President of LP2550 Condominium Association, 2013 - 2021

Current membership in professional organizations
- Fellow of the American Physical Society (APS)
- Fellow of the American Association of Advancement of Science (AAAS)
- Fellow of the American Institute of Aeronautics and Astronautics (AIAA)
- Fellow American Society of Mechanical Engineers (ASME)
- Member: ASEE, Sigma Xi, Tau Beta Pi

Honors and awards
- Received the year's "Excellence in Teaching Award" of I.I.T., 1973-74.
- In 1977, received the Robert T. Knapp award, given for an outstanding original paper by the Fluids Engineering Division of ASME.
- Received 1982 NASA Langley Achievement Award for "Outstanding research contributions in the area of turbulence control and viscous drag reduction."
- Charter Member of the Illinois Governor's Science Advisory Committee.
- Received IIT's Alumni Professional Achievement Award 1995, and IIT's Alumni Service Award in 2006.
- Best Paper Award from AIAA Ground Test Technical Committee in 1997 for "Flow Quality Issues for Large Wind Tunnels," co-authored with E. Reshotko, and W. Saric.
- Recipient of the Gold Medal for Achievement in Science and Technology from the Technical University of Crete, 1997
- Invited Speaker at International Meetings on Turbulence in Bologna, Italy; Trondheim, Norway; Lille, France; Poitier, France, and others.

Recent Service activities
- Member, MMAE Awards Committee

Brief list of most recent professional development activities
- Member of Executive Committee for Ninth International Symposium on Turbulence and Shear Flow Phenomena (TSFP-9), June 30 - July 3, 2015, The University of Melbourne, Australia; http://tsfp9.org
- Co-chair of the Tenth International Symposium on Turbulence and Shear Flow

Phenomena (TSFP10), July 6-9, 2017, Swissotel, Chicago-IL, USA; http://tsfp10.org

- Participated in initiation and continues to work with international research team at the University of Bologna, in Forli, Italy. CICLoPE: The Centre for International Cooperation in Long Pipe Experiments is a research laboratory

As Chief Scientist of I I T Research Institute:

- Established for the first time, and continued for three years to coordinate, an IR&D program for the support of annual projects based on ideas proposed by IITRI scientists and engineers with an annual budget of over a million dollars
- Worked on the expansion of IITRI's international activities
- Established for the first time, and coordinated for two years, an IR&D program supported by IITRI funds for annual projects based on ideas proposed by IIT faculty

As faculty and Founding Director of Fluid Dynamics Research Center:

- In 1971 the Large Wind Tunnels Working Group of AGARD selected a report entitled "Experiments on the Management of Free-Stream Turbulence," by R. I. Loehrke and H. M. Nagib, which was then published and distributed as an AGARD report No. 598 in support of their activities. Since that time Dr. Nagib has been active in that field and is recognized as a leading international expert on flow quality in experimental facilities. He has been a principal consultant to Boeing Commercial Airplane Company regarding flow management of Boeing Supersonic Wind Tunnel, Boeing Transonic Wind Tunnel and Boeing Research Wind Tunnel. The modifications were aimed at improving the flow quality in the test sections of these facilities in order to accommodate the development of the Boeing 757, 767, and 777. The modern critical design of wings on these airplanes imposes new restrictions on the maximum allowable turbulence level and noise in the wind tunnels.
- Acted as the principal consultant to NASA, Langley Research Center, regarding flow management of NASA's 8ft-tunnel to obtain extremely low turbulence intensities in the test section. Novel techniques developed by Nagib and co-workers at IIT were utilized to permit the critical test of the Laminar Flow Control Full Scale Wing. In addition, he was consultant to NASA (Langley Research Center) regarding flow management of NASA's 4 x 7 Meter Tunnel, as well as consultant to NASA (Lewis Research Center) regarding flow management of NASA's Altitude Wind Tunnel, and to NASA (Ames Research Center) regarding design of turbulence reduction system for modified 12 ft. PWT.
- Founded the Fluid Dynamics Research Center and for many years directed its activities to gain international reputation and to achieve designation as a "Center of Excellence" by the Department of Defense.
- Developed new guidelines for optimum contraction designs for fluid dynamic facilities that have dramatically changed and improved the shape of many existing and new wind and water tunnels.
- Developed the counter-jet technique for the simulation of the atmospheric surface layer and demonstrated the need for establishing the sensitivity of wind engineering problems to the variability of this continuously changing boundary layer; other surface layer simulation methods are not easily adjustable to study these sensitivities.

- Modernized smoke-wire visualization and helped make it one of the most popular and effective tools for the study of complex three-dimensional, and time-dependent flows.
- Initiated the concept of parallel and tandem plate boundary layer manipulators and studied its effects on the large-scale structures.
- One of the pioneers in using MEMS actuators in high-speed flows, including for the control of screech in supersonic jets.
- In 1993 the NDF (National Diagnostic Facility) at IIT started its operation after almost 10 years of design, fabrication, assembly and calibration. The facility was conceived and designed by a team lead by Dr. Nagib and is one of the world's most versatile high flow quality wind-tunnels capable of high Reynolds number and unsteady flow research.
- Clarified through high Reynolds number experiments and matched asymptotic analysis the finite Reynolds number and high Reynolds number limit of the velocity distribution in wall-bounded flows such as zero-pressure gradient boundary layers, channels and pipe flows, the Log Law with higher order terms.

During ten years as Department Chair:

- Initial accreditation of the B. S. in Aerospace Engineering degree at IIT by ABET
- Growth of funded research to over $ 2 million per year, a near doubling of average per faculty member
- Recruitment of several faculty in areas of solid mechanics, thermosciences, fluid dynamics, control, design, and manufacturing
- Development of the Interprofessional Project concept and its prototype demonstration

During four years as Dean and Vice President for Academic Affairs:

- Adoption of the Interprofessional Project component for all undergraduate programs at IIT
- First year enrolled undergraduate students number increased by 22%
- First year enrolled undergraduate students average SAT score increased from 1192 to 1291 (to almost the top 10% of US)
- Increased out of state representation in incoming undergraduate class from 40% to 65%
- Number of applications for undergraduate study doubled
- Established faculty involvement in maintaining admission standards
- Retention of first year students increased from 71% to 88%
- First year enrolled graduate students number increased by 23%
- Initiated internet-based distance learning for graduate programs at IIT
- Eliminated dependence on research-based charge-off for all academic units of Main Campus, a 13% budget challenge
- Helped formulate NEXT/Camras Scholars program and carried out its implementation, which became the catalyst for the Pritzker/Galvin $120 million challenge grant and the now completed $ 250 million five-year fund-raising campaign
- Successful Accreditation was granted for full terms by:
    - NAAB for the architecture professional degree programs
    - ABET for engineering programs, including two for the first time
    - APA for clinical psychology and CORE for rehabilitation psychology

- NCA for the university

Other Selected Achievements

- Established for the first time, and continued for four years to coordinate, an IR&D program for the support of annual projects based on ideas proposed by IITRI scientists and engineers with an annual budget of over a million dollars
- In 1971 the Large Wind Tunnels Working Group of AGARD selected a report entitled "Experiments on the Management of Free-Stream Turbulence," by R. I. Loehrke and H. M. Nagib, which was then published and distributed as an AGARD report No. 598 in support of their activities. Since that time Dr. Nagib has been active in that field and is recognized as a leading international expert on flow quality in experimental facilities. He has been a principal consultant to Boeing Commercial Airplane Company regarding flow management of Boeing Supersonic Wind Tunnel, Boeing Transonic Wind Tunnel and Boeing Research Wind Tunnel. The modifications were aimed at improving the flow quality in the test sections of these facilities in order to accommodate the development of the Boeing 757, 767, and 777. The modern critical design of wings on these airplanes imposes new restrictions on the maximum allowable turbulence level and noise in the wind tunnels.
- He also acted as the principal consultant to NASA, Langley Research Center, regarding flow management of NASA's 8ft-tunnel to obtain extremely low turbulence intensities in the test section. Novel techniques developed by Nagib and co-workers at IIT were utilized to permit the critical test of the Laminar Flow Control Full Scale Wing. In addition, he was consultant to NASA (Langley Research Center) regarding flow management of NASA's 4 x 7 Meter Tunnel, as well as consultant to NASA (Lewis Research Center) regarding flow management of NASA's Altitude Wind Tunnel, and to NASA (Ames Research Center) regarding design of turbulence reduction system for modified 12 ft. PWT.
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- Developed new guidelines for optimum contraction designs for fluid dynamic facilities that have dramatically changed and improved the shape of many existing and new wind and water tunnels.
- One of the pioneers in using MEMS actuators in high-speed flows, including for the control of screech in supersonic jets.
- In 1993 the NDF (National Diagnostic Facility) at IIT started its operation after almost 10 years of design, fabrication, assembly and calibration. The facility was conceived and designed by a team lead by Dr. Nagib and is one of the world's most versatile high flow quality wind-tunnels capable of high Reynolds number and unsteady flow research.
- Clarified through high Reynolds number experiments and matched asymptotic analysis the finite Reynolds number and high Reynolds number limit of the velocity distribution in wall-bounded flows such as zero-pressure gradient boundary layers, channels and pipe flows, the Log Law with higher order terms.

Selected Professional Activities

- Associate Editor of Journal of Fluids Engineering of ASME, 1983-85

- Tau Beta Pi (Main Faculty Advisor and Treasure of Illinois Beta Chapter; The chapter under Professor Nagib's guidance received the Tau Beta Pi National Secretary's Commendation for 1976-78
- Member of Executive Committee of the Division of Fluid Dynamics of American Physical Society for three years.
- Member of Organizing Committee of Fourth Biennial Symposium on Turbulence in Liquids, Rolla, Missouri, 1975; chaired two sessions on "Two-Phase Flow" and "Applied Turbulence Measurements."
- Member of Technical Program Committee of 10th Fluid and Plasma Dynamics Conference of AIAA, Albuquerque, New Mexico, 1977; chaired a session on "Jets, Wakes and Plumes."
- Member of Technical Program Committee of 11th Fluid and Plasma Dynamics Meeting of AIAA, Seattle, Washington, 1978; chaired one session on "Turbulent Boundary Layers."
- General Chairmen of "AIAA 2nd Shear Flow Control Conference," which was held in Tempe, Arizona, March 13-16, 1989.
- Technical Program Chair "28th AIAA Fluid Dynamics Conference," Snowmass, CO, 1997.
- Chair of Fluid Dynamics Technical Committee of AIAA, 1989-2002.
- Technical Program Chair "Fluids 2000," Denver, CO, 2000.

Selected Publications

- P. Monkewitz, H. Nagib, The hunt for the Kármán "constant" Revisited, In final review at J. Fluid Mech., 2023.
- H. Nagib, P. Monkewitz, Wall-Bounded Turbulence: Recent Lessons from Experiments-Asymptotics-Computation, Topics in Classical and Quantum Engineering Science Symposium, 2023.
- H. Nagib, P. Monkewitz CICLoPE a Discriminating Facility for Wall-Bounded Turbulence and Recent Lessons from Experiments-Asymptotics-Computation, Invited Contribution in Proceedings of iTi X, 2023.
- S. Hoyas, M. Piedrabuena, E. Kannadasan, H. Nagib, R. Vinuesa, Convergence of numerical simulations for pipe flow, 2nd Spanish Fluid Mechanics Conference, Barcelona, Spain 2023.
- M. Piedrabuena, E. Kannadasan, S. Hoyas, R. Vinuesa, H. Nagib, Importance of Achieving Convergence for Computation of Turbulence Through Pipes and Other Ducts, Proceedings of European Turbulence Conference (ETC18), 2023
- M Stuck, A Vidal, P Torres, HM Nagib, C Wark, R Vinuesa, Spectral-element simulation of the turbulent flow in an urban environment, Applied Sciences 11 (14), 6472, 2021.
- ES Zanoun, C Egbers, H Nagib, F Durst, G Bellani, A Talamelli, Wall friction relations in wall-bounded shear flows, European Journal of Mechanics-B/Fluids 89, 171-179, 2021.
- HM Nagib, A Vidal, R Vinuesa Vorticity fluxes: A tool for three-dimensional and secondary flows in turbulent shear flows, Journal of Fluids and Structures 89, 39-48, 2019.

- H Nagib, P Monkewitz, L Mascotelli, G Bellani, A Talamelli, Uncertainty analysis of the von Kármán constant for the mean centerline velocity in CICLoPE, iTi Conference on Turbulence, 197-202, 2018.
- A Vidal, HM Nagib, P Schlatter, R Vinuesa, Secondary flow in spanwise-periodic in-phase sinusoidal channels, Journal of Fluid Mechanics 851, 288-316, 2018.
- R Vinuesa, P Schlatter, HM Nagib, Secondary flow in turbulent ducts with increasing aspect ratio, Physical Review Fluids 3 (5), 054606, 2018.
- HM Nagib, PA Monkewitz, L Mascotelli, T Fiorini, G Bellani, X Zheng, A Talamelli, Centerline Kármán 'constant' revisited and contrasted to log-layer Kármán constant at CICLoPE, Proceedings of Tenth International Symposium on Turbulence and Shear Flow Phenomena, 2017.
- A Vidal, R Vinuesa, P Schlatter, HM Nagib, Impact of corner geometry on the secondary flow in turbulent ducts, Proceedings of the Tenth International Symposium on Turbulence and Shear Flow Phenomena, 2017.
- PA Monkewitz, HM Nagib, V Boulanger, Comparing the three possible scalings of stream-wise normal stress in turbulent boundary layers, Proceedings of Tenth International Symposium on Turbulence and Shear Flow Phenomena 2017.
- A. Vidal, R. Vinuesa, P. Schlatter and H. M. Nagib. Influence of corner geometry on the secondary flow in turbulent ducts. *Int. J. Heat Fluid Flow.*, 67, 69-78 2017.
- R. Vinuesa and C.L Prus and P.L Schlatter & H.L M.L Nagib 2016 Convergence of numerical simulations of turbulent wall-bounded flows and mean cross-flow structure of rectangular ducts. *Meccanica*, **51**, 3025–3042.
- Ricardo Vinuesa, Hassan M. Nagib, Enhancing the accuracy of measurement techniques in high Reynolds number turbulent boundary layers for more representative comparison to their canonical representations, EUROPEAN JOURNAL OF MECHANICS - B/FLUIDS 00(55):300-312 · FEBRUARY 2016
- Guillaume Bonnavion, William Dziedzic, Aleksandr Obabko and Hassan Nagib, Computations of Evolving Oil Droplet on Surface of a Wall-Bounded Air Flow, AIAA Aerospace Sciences Meeting, San Diego, Jan. 2016.
- Peter A. Monkewitz, and Hassan M. Nagib, Large-Reynolds-number asymptotics of the streamwise normal stress in zero-pressure-gradient turbulent boundary layers, J. Fluid Mech. (2015), vol. 783, pp. 474-503.
- R. Vinuesa, M. H. Hites, C. E. Wark, and H. M. Nagib, Documentation of the role of large-scale structures in the bursting process in turbulent boundary layers, Physics of Fluids **27**, 105107 (2015).
- R. Vinuesa, R. D. Duncan and H. M. Nagib. Alternative interpretation of the Superpipe data and motivation for CICLoPE: the effect of a decreasing viscous length scale. *Eur. J. Mech. B/Fluids*, **58**, 109–116, 2016.
- R. Vinuesa, P. Schlatter and H. M. Nagib. Flow features in three-dimensional turbulent duct flows with different aspect ratios. *Progress in Turbulence VI Proc. iTi Conference on Turbulence*, Bertinoro, Italy, September 21-24, 2014. In print, 2015.
- Vinuesa, R., Schatter, P. and Nagib, H. M., On minimum aspect ratio for duct flow facilities and the role of side walls in generating secondary flows. J. Turbulence, 6, 588-606, 2015.

- R. Vinuesa, P. Schlatter and H. M. Nagib. Characterization of secondary flows in turbulent rectangular ducts with varying aspect ratio. *Proc. Intern. Symp. on Turbulence & Shear Flow Phenomena (TSFP-9)*, Melbourne, Australia, June 30-July 3, 2015.
- Ricardo Vinuesa, Paul H. Rozier, Philipp Schlatter and Hassan M. Nagib, Experiments and Computations of Localized Pressure Gradients with Different History Effects, AIAA Journal, Vol. 52, No. 2, pp. 368-384, 2014.
- R. Vinuesa, P. Schlatter and H. M. Nagib. Role of data uncertainties in identifying the logarithmic region of turbulent boundary layers. *Exp. Fluids*, 55, 1751, 2014.
- Ricardo Vinuesa, Azad Noorani, Adrian Lozano-Duran, George K. El Khoury, Philipp Schlatter, Paul F. Fischer and Hassan M. Nagib, Aspect ratio effects in turbulent duct flows studied through direct numerical simulation, J. Turbulence, 10, 677-706, 2014.
- R. Vinuesa, E. Bartrons, D. Chiu, K. M. Dressler, J.-D. Ruedi, Y. Suzuki and H. M. Nagib. New insight into flow development and two dimensionality of turbulent channel flows. *Exp. Fluids*, 55, 1759, 2014.
- S. C. C. Bailey, M. Hultmark, J. P. Monty, P. H. Alfredsson, M. S. Chong, R. D. Duncan, J. H. M. Fransson, N. Hutchins, I. Marusic, B. J. McKeon, H. M. Nagib, R. Örlü, A. Segalini, A. J. Smits and R. Vinuesa, "Obtaining accurate mean velocity measurements in high Reynolds number turbulent boundary layers using Pitot tubes." *J. Fluid Mech.,* **715**, pp. 642_670, 2013.
- R. Vinuesa, P. H. Rozier, R. D. Duncan and H. M. Nagib, "Renaissance in Turbulent Boundary Layers, and Impact on Modeling Wall-Bounded Turbulence," AIAA 2011-3241, 41st AIAA Fluid Dynamics Conference and Exhibit, 27 - 30 June 2011, Honolulu, Hawaii.
- M. A. McVeigh, H. M. Nagib, T. Wood and I. Wygnanski, "Full-Scale Flight Tests of Active Flow Control to Reduce Tiltrotor Aircraft Download," *J. of Aircraft*, Vol. 48, No. 3, May–June 2011.
- P. A. Monkewitz,1, R. D. Duncan, and H. M. Nagib "Correcting hot-wire measurements of stream-wise turbulence intensity in boundary layers," *Phys. of Fluids*, v22, 091701, 2010.
- I. Marusic, B. McKeon, P. Monkewitz, H. Nagib, A. Smits, A. and K. R. Sreenivasan, "Wall-bounded turbulent flows at high Reynolds numbers: Recent advances and key issues," *Phys. of Fluids*, **22**, 065103, 2010.
- K. A. Chauhan, P. A. Monkewitz and H. M. Nagib, "Criteria for assessing experiments in zero pressure gradient boundary layers," Fluid Dynamics Research 41 (2), 021404, 2009.
- H. Nagib, Experiments and Modeling of Boundary Layers Subjected to Various Pressure Gradients, Progress in Wall Turbulence: Understanding and modeling," Lille (France) : April 21-23 2009, Organized by the WALLTURB Consortium and ERCOFTAC.
- A. Talamelli, F. Persiani, J. Fransson, H. Alfredsson, A. Johansson, H. Nagib, J-D. Ruedi, K. R. Sreenivasan and P. Monkewitz, "CICLoPE - a response to the need for high Reynolds number experiments," Fluid Dyn. Res. 41 (2), 021407, 2009.
- E-S. Zanoun, H. M. Nagib and F. Durst, "Refined C_f relation for turbulent channels and consequences for high Re experiments," Fluid Dynamics Research 41 (2), 021405, 2009.
- R. Krechetnikov, J. E. Marsden, and H. M. Nagib "A mechanistic model of separation bubble" Physica D: Nonlinear Phenomena, 2009.

- H. Nagib and J. Kiedaisch, "Response of a Separation Bubble to Large Disturbances," 2nd International Conference on Jets, Wakes and Separated Flows, ICJWSF, 2008.
- P. A. Monkewitz, K. A. Chauhan, and H. M. Nagib, "Comparison of mean flow similarity laws in zero pressure gradient turbulent boundary layers," *Phys. Fluids*, **20**, 105102, 2008.
- H. Nagib, and K. Chauhan, "Variations of von Karman Coefficient in Canonical Flows," *Phys. of Fluids,* **20**, 101518, 2008.
- P. A. Monkewitz, K. A. Chauhan, and H. M. Nagib, "Self-consistent High-Reynolds Number Asymptotics for ZPG Turbulent Boundary Layers" *Phys. Fluids*, **19**, 115101, 2007.
- K. A. Chauhan, P.A. Monkewitz, and H. M. Nagib, "Flow Development in Boundary Layers with Pressure Gradient," Proceeding of 11th EOROMECH European Turbulence Conference, 2007.
- H. Nagib, J. Kiedaisch, D. Greenblatt, I. Wygnanski, and A. Hassan, "Flow Control for Rotorcraft Applications at Flight Mach Numbers," Proceedings of the IUTAM symposium on "Unsteady Separated Flows and their Control" Springer, 2007.
- H. Nagib, K. Chauhan, and P. Monkewitz, "Approach to an asymptotic state for zero pressure gradient turbulent boundary layers," *Phil. Trans. Royal Soc. A*, vol. **365**, pp. 755-770, 2007.
- H. Nagib, J. Kiedaisch, P. Reinhard, and B. Demanett, "Active Flow Control for High Lift Airfoils: Separation versus Circulation Control", AIAA Paper No. 2007-1119, 45th AIAA Aerospace Sciences Meeting and Exhibit, January 2007.
- K. Chauhan and H. Nagib, "On the Development of Wall-bounded Turbulent Flows," In IUTAM Symposium on Computational Physics and New Perspectives in Turbulence, Nagoya, Japan, Sep 11-14, 2006.
- H. Nagib, J. Kiedaisch, P. Reinhard, and B. Demanett, "Control Techniques for Flows with Large Separated Regions: A New Look at Scaling Parameters", AIAA Paper No. 2006-2857, 3rd AIAA Flow Control Conference, June 2006.
- H. Nagib, J. Kiedaisch, T. Reynolds, P. Reinhard, and B. Demanett, "Active Control of Large Separation Using Zero Mass Flux and Steady, Oscillatory, and Pulsed Suction," Notes on Numerical Fluid Mechanics and Multidisciplinary Design: Conference on Active Flow Control 2006, Springer-Verlag, New York, 2006.
- K. Chauhan, H. Nagib, and P. Monkewitz, "Evidence on nonuniversality of Karman constant," Progress in Turbulence II, volume 109 of Springer Proceedings in Physics, pages 159–163. Springer Berlin Heidelberg, 2007.
- H. M. Nagib, K. A. Chauhan and P. A. Monkewitz, "Scaling of High Reynolds Number Turbulent Boundary Layers Revisited", AIAA paper 2005-4810, 4th AIAA Theoretical Fluid Mechanics Meeting, Jun 6-9, Toronto, Canada, 2005.
- H. Nagib, J. Kiedaisch, I. Wygnanski, A. Stalker, T. Wood, T., and M. A. McVeigh, "First-In-Flight Full-Scale Application of Active Flow Control: The XV-15 Tiltrotor Download Alleviation", NATO RTO-MP-AVT-111-P-29, NATO AVT-111/RSM, Prague, Czech Republic, October 2004.
- H. Nagib, C. Christophorou, and P. Monkewitz, High Reynolds number turbulent boundary layers subjected to various pressure-gradient conditions, *IUTAM 2004: One Hundred Years of Boundary Layer Research*; Aug. 12-14; Göttingen, Germany, 2004.

- P. Monkewitz and H. Nagib, "The Asymptotic Structure of High-Reynolds Number Boundary Layers", IUTAM 2004: One Hundred Years of Boundary Layer Research; Aug. 12-14; Göttingen, Germany.
- H. Nagib, C. Christophorou, J-D Reudi, P. Monkewitz, J. Österlund and S. Gravante, "Can We Ever Rely on Results from Wall-Bounded Turbulent Flows without Direct Measurements of Wall Shear Stress?", AIAA -2004-2392, 24th AIAA Aerodynamic Measurement Technology and Ground Testing Conference Portland, OR 28 June – 1 July, 2004.
- J-D. Ruedi, H. Nagib, J Österlund, P. Monkewitz. Unsteady wall-shear measurements in turbulent boundary layers using MEMS. *Exp Fluids* 36:393–398, 2004.
- J-D. Ruedi, H. Nagib H, J. Österlund, P. Monkewitz, "Evaluation of three techniques for wall-shear measurements in three-dimensional flows. *Exp. Fluids* 35:389–396, 2003.
- E-S Zanoun, F. Durst, and H. Nagib, Evaluating the law of the wall in two-dimensional, fully-developed turbulent channel flow, *Phys. of Fluids*, 15:10 – 3079, 2003.
- J.M. Österlund, A.V. Johansson, H. M. Nagib, and M. H. Hites, A note on the overlap region in turbulent boundary layers, *Phys. Fluids*, **12**, pp. 1 - 4, 2000.
- S. Gravante, A. Naguib, C. Wark and H. Nagib, "Characterization of the Pressure Fluctuations Under a Fully Developed Turbulent Boundary Layer," *AIAA J.*, 36, 10, pp. 1808-1816, 1998.
- C. E. Wark and H. M. Nagib, "Experimental investigation of coherent structures in turbulent boundary layers," *J. Fluid Mech*., 230, pp. 183-208, 1991.
- T. C. Corke, F. Shakib, and H. Nagib, "Mode selection and resonant phase locking in unstable axisymmetric jets," *J. Fluid Mech*., 223, pp. 253-311, 1991.
- C. E. Wark, A. M. Naguib, and H. M. Nagib, "Effect of flat-plate manipulators on the coherent structures in turbulent boundary layers," *AIAA Journal*, 28, 11, pp. 1877-1884, 1990.
- C. E. Wark, M. J. Jennings and H. Nagib, "A Rotating Hot-Wire Technique for Spatial Sampling of Disturbed and Manipulated Duct Flows," *Journal of Experiments in Fluids*, 9, No. 4, pp. 191-196, 1990.
- R. Drubka, P. Reisenthel, and H. Nagib, "The dynamics of low initial disturbance turbulent jets," *Phys. of Fluids A*, 1, 10, pp. 1723-1735, 1988. Also Invited Paper, First National Congress for Fluid Mechanics, Cincinnati, Ohio, 1988.
- J. Cimbala, H. Nagib, and A. Roshko, "Large structure in far wakes of two-dimensional bluff bodies," *J. Fluid Mech*., 190, pp. 265-298, 1988.
- T. C. Corke and H. Nagib, "Wind Microclimate Around Buildings: Characteristics and Control," *J. of Wind Eng. and Indust. Aero*, 16, p.1, 1984.
- J. Tan-atichat, R. I. Loehrke, and H. Nagib, "Interaction of Free-Stream Turbulence with Screens and Grids: A Balance Between Turbulence Scales," *J. Fluid Mechanics*, 114, p.501, 1982.
- P. Merati, R. Wigeland, and H. Nagib, "Control of Adverse Wind Near Buildings," Transp. Eng. J., 108,5, p.509, 1982.
- R. A. Wigeland, J. Tan-atichat and H. Nagib, "Evaluation of a New Concept for Reducing Free-Stream Turbulence in Wind Tunnels," *J. of Aircraft*, 18, p.528, 1981.

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- T.C. Corke and H. Nagib, "Wind Loads on a Building Model in a Family of Surface Layers", *J. Indust. Aero.*, 5, p.159, 1979.
- T. C. Corke and H. Nagib, "A large Signal-to-Noise Technique for Unsteady Pressure Measurements," AIAA J., 17, p.114, 1979.
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