

# Curriculum Vitae for Dr. John Matsson

## Personal Data

Name	O. John E. Matsson
Academic Rank and Title:	Chairman and Professor at Engineering, Computing, Physics, and Mathematics Department
Address	Oral Roberts University College of Science and Engineering Engineering and Physics Department 7777 S. Lewis Ave. Tulsa, OK 74171
Telephone	+1 (918) 495-6935
Email	jmatsson@oru.edu
Fax	+1 (918) 495-7648

## Education and Academic Degrees

Degree of Doctor of Philosophy, KTH, Stockholm, Sweden	1994
Degree of Licentiate of Engineering, KTH, Stockholm, Sweden	1991
Masters degree, KTH, Stockholm, Sweden	1988

## Number of Years of Service on the Faculty at Oral Roberts University

Faculty member since fall of 2001.

## Employment History

Chairman and Professor, ORU, Tulsa, USA	2010-Present
Chairman and Associate Professor, ORU, Tulsa, USA	2007-2010
Associate Professor, ORU, Tulsa, USA	2003-2007
Assistant Professor, ORU, Tulsa, USA	2001-2003
Assistant Professor, LOU, Uppsala, Sweden	1997-2001
Post-doc scholarship at the Department of Applied Mechanics/Fluid Dynamics, Norwegian Institute of Science and Technology, Trondheim, Norway	1994-1996
Graduate student at the Department of Mechanics/Fluid Physics, Royal Institute of Technology (KTH), Stockholm, Sweden	1988-1994

## **Teaching Experience**

Undergraduate courses:

EGR 100	Engineering Seminar
EGR 101	Introduction to Engineering (2-hr lecture)
EGR 140	Engineering Graphics (2-hr lecture)
EGR 231	Heat and Thermodynamics (3-hr lecture and labs)
EGR 330	Control Systems (3-hr lecture and labs)
EGR 331	Design of Control Systems (3-hr lecture and labs)
EGR 498	Senior Design and Research I (Project Advisement)
EGR 499	Senior Design and Research II (Project Advisement)
ELE 363	Mathematics EC-3 (3-hr lecture)
ELE 373	Mathematics 4-8 (3-hr lecture)
ELE 383	Science Methods (3-hr lecture)
MAT 151	Math and Society (3-hr lecture)
MAT 232	Elementary Statistics (3-hr lecture)
ME 321	Mechanics of Materials (3-hr lecture and labs)
ME 331	Applied Thermodynamics (3-hr lecture and labs)
ME 371	Machines and Mechanisms (3-hr lecture)
ME 381	Principles of Design (3-hr lecture and labs)
ME 433	Heat Transfer (3-hr lecture and labs)
ME 441	Fluid Mechanics (3-hr lecture and labs)
ME 442	Heating, Ventilation, and Air Conditioning Systems (3-hr lecture and labs)
ME 444	Experimental Methods (3-hr lecture and labs)
ME 447	Finite Element Method (3-hr lecture and labs)
ME 450	Special Topic: Aerodynamics (3-hr lecture and labs)
ME 461	Manufacturing Processes (3-hr lecture and labs)
ME 482	Advanced Design (3-hr lecture and labs)
PHY 111	Physics I (3-hr lecture and labs)
PSC 101	Physical Science (3-hr lecture and labs)
PSC 201	Earth Science (3-hr lecture and labs)
PSC 350	Environmental Geography (3-hr lecture and labs)

## **Other Assigned Duties Performed During the Academic Year**

ABET Reaccreditation Committee

Academic Advisement, Senior Project Advisement

ASME Student Chapter Adviser, SHPE Student Chapter Adviser

Faculty Advisor of the Student Section of ASME

College of Science and Engineering Curriculum Committee

## **Chair**

General chair for the XXXII Oklahoma AIAA/ASME Symposium, March 10, 2012, ORU  
Chairman for the Engineering, Computer Science, Physics, and Mathematics Dept. at ORU from August, 2009

General chair for the XXVIII Oklahoma AIAA/ASME Symposium, March 8, 2008, ORU  
Chairman for the ASME Mid-Continent Section in Tulsa, OK, July, 2007 – June 2012  
Chairman for the Engineering and Physics Dept. at ORU from June, 2007

General chair for the XXII Oklahoma AIAA/ASME Symposium, Feb. 23, 2002 at ORU

## **Extended Scholarly Visits**

EPFL, Lausanne, Switzerland, June 1991, September 1992

## **Membership in Associations in the Academic Field**

American Society for Engineering Education (ASEE)

American Society for Mechanical Engineers (ASME)

## **Awards**

Awarded for a three-year grant from the Oklahoma State Regents for Higher Education for the ORU Summer Math and Science Academy 2015, \$79,200

Received grant for an ASHRAE Senior Undergraduate Project titled “Space Air Diffusion Laboratory” 2015, \$4,992

Received grant for a “Computational and Experimental Fluid Dynamics Laboratory”, 2013, \$100,000

Awarded for a three-year grant from the Oklahoma State Regents for Higher Education for the ORU Summer Math and Science Academy 2012, \$79,200

Received grant for an ASHRAE Senior Undergraduate Project titled “Swirling Pipe Flow Laboratory” 2010, \$4,903

Awarded for a three-year grant from the Oklahoma State Regents for Higher Education for the ORU Summer Math and Science Academy 2009, \$93,504

Chair’s Award for Mentoring in the Classroom (ORU) 2002, \$240

Intramural Grant Award from Oral Roberts University (ORU) 2002, \$3,895

Swedish Research Council for Engineering Sciences (TFR), 1994-1996, \$30,700

Swedish Institute (SI), 1994-1996, \$15,900

Bengt Ingeströms foundation for scholarships, 1993, \$8,000

## Textbooks

- Matsson, O.J.E. 2016, An Introduction to SolidWorks Flow Simulation 2012, SDC Publications
- Matsson, O.J.E. 2015, An Introduction to SolidWorks Flow Simulation 2012, SDC Publications
- Matsson, O.J.E. 2014, An Introduction to SolidWorks Flow Simulation 2012, SDC Publications
- Matsson, O.J.E. 2013, An Introduction to SolidWorks Flow Simulation 2012, SDC Publications.
- Matsson, O.J.E. 2012, An Introduction to SolidWorks Flow Simulation 2012, SDC Publications.
- Matsson, O.J.E. 2011, An Introduction to SolidWorks Flow Simulation 2011, SDC Publications.
- Matsson, O.J.E. 2010, An Introduction to SolidWorks Flow Simulation 2010, SDC Publications.
- Matsson, O.J.E. 2009, An Introduction to SolidWorks Flow Simulation 2009, SDC Publications.
- Matsson, O.J.E. 2008, An Introduction to COSMOSFloWorks 2008, SDC Publications.

## Publications in Archival Journals

- Matsson, O.J.E. 2008 "Görtler vortices in Falkner-Skan flows with suction and blowing." *International Journal for Numerical Methods in Fluids*, Volume 56, Issue 3.
- Matsson, O.J.E. 1998 "Görtler vortices in wall jet flow on a rotating cylinder." *Phys. Fluids* **10**, 2238-2249
- Matsson, O.J.E. 1995 "Experiments on streamwise vortices in curved wall jet flow." *Phys. Fluids* **7**, 2978-2988.
- Matsson, O.J.E. 1995 "On the curved wall jet influenced by system rotation and self-similar suction or blowing". *Phys. Fluids* **7**, 3048-3059.
- Matsson, O.J.E. & Alfredsson, P. H. 1994 "The effect of spanwise system rotation on Dean vortices". *J. Fluid Mech.* **274**, 243-265.
- Matsson, O.J.E. 1993 "Channel flow instabilities induced by curvature and rotation". Doctoral Thesis, Stockholm, Sweden, *TRITA-MEK TR 1993:14*.
- Matsson, O.J.E. 1993 "Time-dependent instabilities in curved rotating channel flow". *Phys. Fluids A* **5**, 1514-1516.
- Matsson, O.J.E. & Alfredsson, P. H. 1993. "Secondary instability and breakdown to turbulence in curved channel flow". *Appl. Sci. Res.* **51**, 9-14.

Alfredsson, P.H., Matsson, O.J.E., Bottaro, A. & Truong, T.V. 1992 "Effect of curvature and rotation on boundary layer flows". *ERCOTAC-Bullentin*, 13, 4-7.,

Matsson, O.J.E. & Alfredsson, P. H. 1992 "Experiments on instabilities in curved channel flow". *Phys. Fluids A***4**, 1666-1676.

Bottaro, A., Matsson, O.J.E. & Alfredsson, P.H. 1991 "Numerical and experimental results for developing curved channel flow". *Phys. Fluids A***3**, 1473-1476.

Matsson, O.J.E. & Alfredsson, P.H. 1990 The velocity field in a curved channel - with special emphasis on secondary instability. *Bull. Am. Phys. Soc.* **35** (10), 2264.

Matsson, O.J.E. & Alfredsson, P. H. 1990 "Curvature and rotation induced instabilities in channel flow". *J. Fluid Mech.* **210**, 537-563.

### **Publications in Conference Proceedings**

Matsson, J.E., Voth, J.A., McCain, C.A., McGraw, C. 2016 "Aerodynamic Performance of the NACA 2412 Airfoil at Low Reynolds Number." In *Proceedings of the 2016 American Society for Engineering Education Annual Conference & Exposition*, June 26 - 29, New Orleans, LA.

Matsson, J.E., Fulton, M.R., Harrup, B.T., Case, M.N., 2016 "Space Air Diffusion Laboratory." In *Proceedings of the 2016 American Society for Engineering Education Annual Conference & Exposition*, June 26 - 29, New Orleans, LA.

Matsson, J.E., Boisselle, J., 2015 "A Senior Design Project on the Kelvin-Helmholtz Instability." In *Proceedings of the 2015 American Society for Engineering Education Annual Conference & Exposition*, June 15 - 18, Seattle, WA.

Matsson, J.E. 2014 "A Swirling Pipe Flow Course Project." In *Proceedings of the 2014 American Society for Engineering Education Annual Conference & Exposition*, June 15 - 18, Indianapolis, IN.

Matsson, J.E. 2008 "A Student Project on Rayleigh-Benard Convection." In *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition*, June 22 - 25, Pittsburgh, PA.

Matsson, J.E. 2007 "A Student Project on Airfoil Performance." In *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition*, June 24 - 27, Honolulu, Hawaii.

Matsson, J.E. 2004 "Laboratory Experience with a Model Jet Turbine." In *Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition*, June 20 - 23, Salt Lake City, USA

Matsson, J.E. 2002 "On the Integration of Fluid Flows and Fabrication." In *Proceedings of the 2002 American Society for Engineering Education Annual Conference & Exposition*, June 16-19, Montreal, Canada.

Matsson, O.J.E. 1995 "Experiments on the laminar wall jet affected by curvature". *336th EUROMECH Colloquium on flows dominated by centrifugal and Coriolis forces*, June 21-23, Trondheim, Norway.

Pexieder, A., Truong, T.V., Maxworthy, T., Matsson, O.J.E. & Alfredsson, P.H. 1993 "Görtler vortices with system rotation: experimental results". In *Spatio-Temporal Properties of Centrifugal Instabilities, NATO Advanced Research Workshop*, March 28-29, Nice, France.

Matsson, O.J.E., Bottaro, A. & Alfredsson, P. H. 1991 "Transition to turbulence in curved channel flow". In *Eight Symp. on Turbulent Shear Flows*, Sept. 9-11, Munich, Germany, Paper 18-2.

### **Conference Presentations**

Matsson, J.E., Voth, J.A., McCain, C.A., McGraw, C. 2016 "Aerodynamic Performance of the NACA 2412 Airfoil at Low Reynolds Number." In *Proceedings of the 2016 American Society for Engineering Education Annual Conference & Exposition*, June 26 - 29, New Orleans, LA.

Matsson, J.E., Fulton, M.R., Harrup, B.T., Case, M.N., 2016 "Space Air Diffusion Laboratory." In *Proceedings of the 2016 American Society for Engineering Education Annual Conference & Exposition*, June 26 - 29, New Orleans, LA.

Matsson, J.E., Boisselle, J., 2015 "A Senior Design Project on the Kelvin-Helmholtz Instability." In *Proceedings of the 2015 American Society for Engineering Education Annual Conference & Exposition*, June 15 - 18, Seattle, WA.

Matsson, J.E. 2014 "A Swirling Pipe Flow Course Project." In *Proceedings of the 2014 American Society for Engineering Education Annual Conference & Exposition*, June 15 - 18, Indianapolis, IN.

Matsson, J.E. 2008 "A Student Project on Rayleigh-Bénard Convection." In *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition*, June 24 - 27, Pittsburgh, PA

Matsson, J.E. 2007 "A Student Project on Airfoil Performance." In *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition*, June 24 - 27, Honolulu, Hawaii

Matsson, J.E. 2004 "Laboratory Experience with a Model Jet Turbine." In *Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition*, June 20 - 23, Salt Lake City, USA

Matsson, O.J.E, 2003 Instabilities in Fluid Flows due to Body Forces, XXIII Oklahoma AIAA/ASME Symposium

Matsson, O.J.E. 2002 Instabilities in Thin-Film Flows, APS-meeting, Division of fluid dynamics, Dallas, Texas, USA

Matsson, J.E. 2002 "On the Integration of Fluid Flows and Fabrication." In *Proceedings of the 2002 American Society for Engineering Education Annual Conference & Exposition*, June 16-19, Montreal, Canada.

Matsson, O.J.E. 1995 "Experiments on the laminar wall jet affected by curvature". 336th EUROMECH Colloquium on flows dominated by centrifugal and Coriolis forces, June 21-23, Trondheim, Norway.

Matsson, O.J.E. & Alfredsson, P.H. 1993 The effect of spanwise system rotation on Dean vortices. Workshop on stability and transition, Roslagens Pärta, Stockholm, Sweden.

Matsson, O.J.E. & Alfredsson, P.H. 1993 Hot-wire measurements and visualization in curved channel flow with system rotation. Svenska mekanikdagar, Borås.

Alfredsson, P.H. & Matsson, O.J.E. 1992 Secondary instability and breakdown to turbulence in curved channel flow. Fourth European Turbulence Conference, Delft, Netherlands, June. 1992.

Matsson, O.J.E. & Alfredsson, P.H. 1992 Experiments in plane channel flow with system rotation. Svenska mekanikdagar, Stockholm.

Alfredsson, P.H., Matsson, O.J.E. & Bottaro, A. 1991 Transition to turbulence in curved channel flow. Proc. 8th Symp. on Turbulent Shear Flows, Munich, Germany, Sept. 9-11, 1991.

Matsson, O.J.E. & Alfredsson, P.H. 1990 The velocity field in a curved channel - with special emphasis on secondary instability. APS-meeting, Division of fluid dynamics, Cornell Univ., USA

Matsson, O.J.E. & Alfredsson, P.H. 1990 Transition in curved channel flow. Third European Turbulence Conference, Stockholm, Sweden.

Alfredsson, P.H. & Matsson, O.J.E. 1990 The effect of curvature and rotation on the stability of channel flow. Euromech 261, Nantes, France.

Matsson, O.J.E. & Alfredsson, P.H. 1989 Curvature and rotation induced instabilities in channel flow. 3rd IUTAM conf. on Laminar Turbulent Transition, Toulouse, France.

Alfredsson, P.H. & Matsson, O.J.E. 1989 Curvature and rotation induced instabilities in channel flow. Euromech 245, Cambridge, England.

Alfredsson, P.H. & Matsson, O.J.E. 1988 Rotation and curvature induced hydrodynamic instability theory and experiment. Svenska mekanikdagar, Stockholm.