

David Gonzalez-Rodriguez

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Education

Massachusetts Institute of Technology Cambridge, Massachusetts, USA
Present Ph.D. Candidate in Environmental Fluid Mechanics and Coastal Eng.
Expected graduation date: February 2009. *GPA: 5.0/5.0*

Feb. 2006 M.S. in Civil and Environmental Engineering. *GPA: 5.0/5.0*

University of A Coruña A Coruña, Galicia, Spain
Sep. 2002 Ingeniero de Caminos, Canales y Puertos
Spanish five-year degree in Civil Engineering

Fellowships and Awards

Jun. 2008 2008 School of Engineering Graduate Student Extraordinary Teaching and Mentoring Award. *School of Engineering, MIT*

May 2007 Maseeh Annual Award for Excellence as a Teaching Assistant
Department of Civil and Environmental Engineering, MIT

Sep. 2003 – Barrié de la Maza Foundation Fellowship
May 2005 *Administered by the Institute of International Education*

Mar. 2003 First Prize in the Spanish Civil Engineering Degree Awards
Ministry of Science and Education, Spain

Jan. 2003 First Prize in the Galician Civil Engineering Degree Awards
Government of Galicia, Spain

Nov. 2002 Award to the highest GPA in Civil Engineering
University of A Coruña, Spain

Oct. 2002 Award of the Galician Society of Civil Engineers, Class of 2002

Mar. 1997 Silver Medal in the XXXIII Spanish Olympiad of Mathematics

Nov. 1996 Winner of the Galician Olympiad of Mathematics

Research Experience

Massachusetts Institute of Technology Cambridge, Massachusetts, USA

Sep. 2003 – Present Ralph M. Parsons Laboratory

Graduate Research Assistant *Supervisor: Professor Ole S. Madsen*

Developed a hydrodynamics and sediment transport model in the nearshore region to predict beach profile evolution. Investigated the boundary layer hydrodynamics due to nearshore waves and currents. Obtained an analytical solution that explains the boundary-layer streaming observed in oscillatory wave tunnels.

University of A Coruña A Coruña, Galicia, Spain

Oct. 2002 – Jun. 2003 Coastal and Port Engineering Laboratory

Graduate Research Assistant*Supervisor: Professor Juan R. Acinas*

Applied a numerical model to characterized coastal wave climate. Conducted field work to describe the morphology of the littoral lagoons in A Coruña province.

Jul. 2000 – Jun. 2002

Numerical Methods in Engineering Group

Undergraduate research thesis*Supervisor: Professor Ignasi Colominas*

Reviewed numerical methods for solving large, sparse linear systems. Implemented the GMRES algorithm into a finite element code to study a convection-diffusion problem.

Teaching and mentoring experience

Summer 2008

Massachusetts Institute of Technology

Undergraduate Research Opportunities Program Mentor

Supervised an undergraduate student's research project in coastal engineering.

Spring 2006 and Spring 2008

Massachusetts Institute of Technology

Graduate Teaching Assistant*Professor Ole S. Madsen*

1.060: Engineering Mechanics II (formerly Fluid Mechanics). Responsible for teaching recitations, for designing and grading the assignments, and for tutoring students.

Spring 2001

University of A Coruña, Spain

Undergraduate Teaching Assistant*Professor Ignasi Colominas*

Calculus II. Responsible for Fortran programming recitations, and for tutoring students.

Refereed publications**Reciprocal locomotion of dense swimmers in Stokes flow**

D. Gonzalez-Rodriguez and E. Lauga. *Journal of Physics: Condensed Matter*. Accepted for publication in the special issue on "Swimming at low Reynolds numbers."

Seabed shear stress and bedload transport due to asymmetric and skewed waves

D. Gonzalez-Rodriguez and O. S. Madsen. *Coastal Engineering* 54 (12), pp. 914-929, 2007. doi:10.1016/j.coastaleng.2007.06.004

Contributed Presentations**Breakdown of the Scallop Theorem with particle inertia** (oral)

D. Gonzalez-Rodriguez (presenter) and E. Lauga. APS-DFD meeting, November 24, 2008. San Antonio, USA.

Bedload transport due to asymmetric and skewed waves plus a current (oral)

D. Gonzalez-Rodriguez (presenter) and O. S. Madsen. September 5, 2008. Hamburg, Germany. *Paper to appear in the Proceedings of the 31st ICCE*.

Prediction of non-linear wave characteristics in the surf zone (poster)

O. S. Madsen and D. Gonzalez-Rodriguez. 30th ICCE, September 2006. San Diego, USA.

Invited Seminars**A frog, a scallop, and a gain of sand: Coastal sediment transport and the breakdown of the Scallop Theorem**

Physical Mathematics Seminar, Department of Mathematics, MIT. November 4, 2008.

Membership

American Physical Society.