Irene Arias

Department of Applied Mathematics
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Current position

Assistant professor, Universitat Politècnica de Catalunya

Education

Civil Engineering, Escola Tècnica Superior d'Enginyers de Camins, Canals i Ports de Barcelona (1998)
Ph. D. in Mechanical Engineering, Northwestern University (USA) (2003)

Research interests

Computational solid mechanics
Modeling and simulation of dynamic fracture and fragmentation, engineering and physical aspects
Mathematical modeling of active materials
Wave propagation in solids and non-destructive evaluation

Career

Assistant Professor, Dept. of Applied Mathematics III, Universitat Politècnica de Catalunya, since 2004.
Postdoctoral Scholar, Graduate Aeronautical Laboratories, California Institute of Technology, 2003-2004
Research Assistant, Dept. of Mechanical Engineering, Northwestern University, 1999-2003

Honors and awards

Walter P. Murphy Fellowship (2002-2003)
Dissertation Year Cabell Fellowship (2001-2002)
Fulbright/BSCH Fellowship (1999-2001)
First Prize in the XVII Dragados Award for the Degree's Project (1998)

Professional activities

Reviewer for the journals *Wave Motion, and Mechanics Research Communications*
President of the Mechanics Club at Northwestern University, organizing monthly seminars where graduate students and post-docs present their work (2001-2002)

Summary of journal publications

Journal	**Impact factor**	**Number of papers**
International Journal for Numerical Methods in Engineering	1.692	1
International Journal of Solids and Structures	1.327	1
Wave Motion	0.629	2
Other indexed journals		
Other papers in refereed journals		4

Selected publications (max. 5)

Arias I, Serebrinsky S., Ortiz M, "A cohesive model of fatigue of ferroelectric materials under electro-mechanical cyclic loading", in: Dimitris C. Lagoudas (Ed.), Active Materials: Behavior and Mechanics, *Proceedings of SPIE* Vol. 5387, 2004.

Arias I, Achenbach JD, "Rayleigh wave correction for the BEM analysis of two-dimensional elastodynamic problems in a half-space", *International Journal for Numerical Methods in Engineering* 60, 2004.

Arias I, Achenbach JD, "Use of reciprocity considerations for the two-dimensional BEM analysis of wave propagation in an elastic half-space with applications to acoustic emission", *Wave Motion* 39, 2004.

Arias I, Achenbach JD, "A model for the ultrasonic detection of surface-breaking cracks by the Scanning Laser Source technique", *Wave Motion* 39, 2004.

Arias I, Achenbach JD, "Thermoelastic generation of ultrasound by line-focused laser irradiation", *International Journal of Solids and Structures* 40, 2003.