

Curriculum vitae

Sonia Fernández-Méndez

Personal Data

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 Web of Science Researcher ID: [G-8238-2011](https://orcid.org/0000-0002-1111-1111) Scopus ID: 6506239863
 Current position: Associate Professor (**Títular de Universitat**) at departament d'Enginyeria Civil i Ambiental (ECA), Universitat Politècnica de Catalunya

Education

- Ph.D. in Applied Mathematics at Universitat Politècnica de Catalunya, November 2001.
- Degree in Mathematics at Universitat Politècnica de Catalunya, June 1996.

Research interests

Computational Mechanics, with special interest in Advanced Discretization Techniques (high-order finite element computations, Discontinuous Galerkin methods, eXtended finite elements, numerical solution of 4th order PDEs) and applications (electroactive materials, crack propagation, bubble formation and dynamics, etc)

Awards

- *Jacques Louis Lions Award 2010 for Young Scientists in the field of Computational Mathematics*, by European Community on Computational Methods in Applied Sciences (ECCOMAS), June 2010
- *Juan Carlos Simó award 2009 for young scientist in the field of Computational Mechanics*, by Sociedad Española de Métodos Numéricos en Ingeniería (SEMNI), June 2009
- Annual special doctorate award 2001-2002 by Universitat Politècnica de Catalunya.

Papers in indexed journals

| Journal | # papers | Impact Factor JCR 2018 |
|--|----------|---------------------------|
| International Journal for Numerical Methods in Engineering | 7 | 2.746 Q1 |
| International Journal for Numerical Methods in Fluids | 6 | 1.631 Q2 |
| Journal of Scientific Computing | 3 | 2.37 Q1 |
| Computer Methods in Applied Mechanics and Engineering | 3 | 4.821 Q1 |
| Archives of Computational Methods in Engineering | 1 | 7.242 Q1 |
| Finite Elements in Analysis and Design | 1 | 2.456 Q1 |
| Numerische Mathematik | 1 | 2.137 Q1 |
| other | 7 | |

total: **29** papers H-index: **16** Sum of the times cited: **897** average citations per article: **32**

1. A. Huerta and S. Fernández-Méndez, "Enrichment and coupling of the finite element and meshless methods", International Journal for Numerical Methods in Engineering (2000)
Times cited WoK: **127**

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6. S. Fernández-Méndez and A. Huerta, "Imposing essential boundary conditions in mesh-free methods", *Computer Methods in Applied Mechanics and Engineering* (2004)
Times cited WoK: **221**
...
10. R. Sevilla, S. Fernández-Méndez and A. Huerta, "NURBS-enhanced finite element method (NEFEM)", *International Journal For Numerical Methods in Engineering* (2008)
Times cited WoK: **93**
...
23. Gürkan, C.; Sala-Lardies, E.; Kronbichler, M.; Fernández-Méndez, S., "eXtended Hybridizable Discontinuous Galerkin (X-HDG) for void problems", *Journal of Scientific Computing* (2016)
24. Modesto, D., Fernández-Méndez, S., and Huerta, A., "Elliptic Harbor Wave Model with Perfectly Matched Layer and Exterior Bathymetry Effects" *Journal of Waterway, Port, Coastal, and Ocean Engineering* (2016)
25. Gürkan, C.; Kronbichler, M.; Fernández-Méndez, S. "eXtended Hybridizable Discontinuous Galerkin with Heaviside enrichment for heat bimaterial problems", *Journal of Scientific Computing* (2017)
26. Paipuri, M.; Fernández-Méndez, S. and Tiago, C., "Comparison of high-order continuous and hybridizable discontinuous Galerkin methods for incompressible fluid flow problems", *Mathematics and Computers in Simulation* (2018)
27. Paipuri, M.; Tiago, C. and Fernández-Méndez, S. "Coupling of continuous and hybridizable discontinuous Galerkin methods. Application to conjugate heat transfer problem", *Journal of Scientific Computing* (2019)
28. Gürkan, C.; Kronbichler, M.; Fernández-Méndez, S. "eXtended hybridizable discontinuous Galerkin for incompressible flow problems with unfitted meshes and interfaces", *International Journal For Numerical Methods in Engineering* (2019)
29. Codony, D.; Marco, O.; Fernández-Méndez, S. and Arias, I., "An immersed boundary hierarchical B-spline method for flexoelectricity", *Computer Methods in Applied Mechanics and Engineering* (2019)

PhD advising

1. Rubén Sevilla, "NURBS-Enhanced Finite Element Method (NEFEM)", UPC, June 2009. Advisors: S. Fernández-Méndez and A. Huerta.
2. Adeline de Montlaur, "High-order Discontinuous Galerkin methods for incompressible flows", UPC, September 2009. Advisors: S. Fernández-Méndez and A. Huerta.
3. Giorgio Giorgiani, "Adaptive hybrid discontinuous methods for fluid and wave problems", UPC, April 2013. Advisors: S. Fernández-Méndez and A. Huerta.
4. Mostafa Javadzadeh Moghtader, "High-Order Hybridizable Discontinuous Galerkin Method for Viscous Compressible Flows", UPC, November 2016. Advisor: S. Fernández-Méndez
5. Mahendra Paipuri, "Comparison and coupling of continuous and hybridizable discontinuous Galerkin methods: Application to multi-physics problems", March 2018. Advisors: C. Tiago (Instituto Superior Technico), S. Fernández-Méndez
6. Ceren Gürkan, "eXtended hybridizable discontinuous Galerkin method", November 2018. Advisors: S. Fernández-Méndez and M. Kronbichler (Technical University of Munich)

Other relevant information

- 3 recognised reseach periods (sexenios)
- Positive evaluation from ANECA Academia for *Catedrático de Universidad* (CU), March 2019.
- Participation in 27 research projects, 3 funded by the EC. PI in the project DAFOH2, Spanish ministry.
- Director of the Master in Advanced Mathematics and Mathematical Engineering (MAMME), coordinator of the PhD program in Applied Mathematics at UPC, from March 2014 to March 2019.
- Teaching mainly at the Faculty of Mathematics and Statistics and at the Civil Engineering School at UPC, degree and master level.
- Referee for JCR indexed journals: *International Journal for Numerical Methods in Engineering*, *Computer Methods in Applied Mechanics and Engineering*, *Finite Elements in Analysis and Design*, *Journal of Scientific Computing*,...