

CURRICULUM VITAE

Last names: VAZQUEZ SUAREZ

First names: JUAN LUIS

Date and place of birth: 26-July-1946, in Oviedo, Spain.

Private address: c. Ecuador 2, 3 B, Majadahonda, 28220 Madrid.

Married, with one daughter, one son, and two grandchildren.

Education

Graduate in Mathematics	Universidad Complutense de Madrid,	1973.
Doctor in Mathematics	Universidad Complutense de Madrid,	1979.
Telecommunications Engineer,	ETSI Telecom. Madrid	1965/69.

Professional status

- Emeritus Professor, Universidad Autónoma de Madrid.

Departamento de Matemáticas, Facultad de Ciencias, Universidad Autónoma de Madrid, Cantoblanco, 28049 Madrid, Spain.

- Previous: Full Professor of Applied Mathematics (Catedrático de Matemática Aplicada), 1986–2016. Depto. Matemáticas, Univ. Autónoma de Madrid.

Main positions abroad:

- 1982–83, Fulbright Scholar Scholar at Univ. of Minnesota, USA. 1 year.
- 1987, Associate member, Inst. Advanced Study in Princeton (EEUU). Fall semester.
- 1991, Coorganizer of the Spring Semester at IMA (Institute for Mathematics and its Applications, Univ. of Minnesota), USA.
- 2001, Visiting Fellow, Univ. Texas: 6 months.
- 2011, Eisenbud Visiting Professor at the Mathematical Sciences Research Institute (MSRI), University of California, Berkeley (USA). February-May.
- 2014, Jan. to July. Isaac Newton Institute, Cambridge, UK. Organizer of the semester programme on Free Boundary Problems.
- Visiting professor for 1 or 2 months at several universities. Here is a list:

Ecole Normale Sup. de Paris (France); Univ. Minnesota (USA); Courant Institute, Nueva York (USA); Univ. Roma 1 (Italy); Univ. Tours (France); Univ. de Chicago, (USA); Ecole Normale Sup. de Lyon (France); OCIAM, Oxford (England); Mittag-Leffler Inst., Stockholm (Sweden); Heriot-Watt Univ. (Edinburgh, UK); Univ. Buenos Aires (Argentina); Wolfgang Pauli Institut, Vienna;

Recently: Univ. Texas, USA (2007 and 2011); Univ. Paris Dauphine (2008); Univ. Pierre et Marie Curie de Paris (2010), Institut Mittag-Leffler, Stockholm (2016), Warwick University, UK (2017), Imperial College, London (2019).

Main Distinctions (in chronological order)

- * **Spanish National Prize for Research in Mathematics 2003** “Julio Rey Pastor”. Distinction given by King Juan Carlos on November 3th, 2003.
- * Thomson Reuters ISI “**Highly cited researcher**” since 2003.
- * Plenary speaker at the **International Congress of Mathematicians (ICM2006)**, held in Madrid in 2006.

- * Member of the **inaugural class of Fellows of the American Mathematical Society**, 2013.
- * **Academician** of RACEFyN, the Royal Science Academy of Spain, elected 2013.
- * **Académico correspondiente** of Real Academia de Ciencias de Zaragoza, June 2015.
- * **Doctor Honoris Causa**, Universidad de Oviedo, Oct. 2015.
- * Fellow of the **European Academy of Sciences EURASC**, 2016.
- * **Medal** of RSME, the Royal Spanish Mathematical Society, 2018.
- * **Honorary Professor** at Universidad Complutense de Madrid, from 2018.

Achievements as researcher and team leader

* Author of more than 300 research articles in recognized journals according to the best known mathematical database, Mathscinet. Many of them written in collaboration with more than 110 authors from two dozen countries, three of them Fields medalists. One of the articles (on the Maximum Principle) is cited more than 800 times in Mathscinet, which places it among the 20 most cited papers ever in the topic Partial Differential Equations (topic 35 in the AMS Classification). Personal h-index : Mathscinet= 40, Google Scholar=63.

* Author of 3 research books with wide readership, two published by Oxford University Press (2006 and 2007), and one by Birkhäuser (2004). Several other books as Editor, the last one published by the London Royal Society (2015). Moreover, some books and notes are available online.

* Advisor of 14 Ph. D. Thesis. Most of the students are now active researchers in different countries. The last student is a Postdoc at Univ. of Zürich.

* Organizer of over a 100 courses, summer schools, congresses, workshops in different countries. To mention:

- International Congress of Free Boundaries, Toledo (Spain), 1993;
- 12 Mathematical Summer Schools at UIMP, Palacio de la Magdalena, Santander, in the period 1984 to 2015.
- Coorganizer of the Spring “Programme on Free Boundaries Problems” at the Newton Institute, Cambridge, England (Jan.-July, 2014).

* Director of a research team in Spain since 1984 to 2017 and participant or principal investigator (PI) in numerous programs in Spain, in Europe, or in collaborations with US, South America or Japan.

* Speaker in distinguished events: Collège de France in Paris (1991); ... Giornata Indam (2009) in Pisa, Italy; Abel Symposium in Oslo, Norway (2010); Evans Lecture at the University of California Berkeley (2011); Conferenze Leonardesche in Milan, Italy (2011); International Conference on Free Boundaries Problems (Stockholm 2008 and Cambridge 2014); Lezione Lagrangiana, Univ. Torino, Italy (2018).

* Invited courses given at international centers, here is a selection: Corso Estivo di Matematica, Cortona, Italy (1987 and 2012); International Course “Shape Optimization and Free Boundaries” (a NATO Summer School), Université de Montréal, Canadá (1990); Universidad de Buenos Aires (1998); Corso CIME 2016, Cetraro, Italy; Scuola Estiva di Fisica Matematica, Ravello, Italy, 2016.

* Member of Scientific Advisory Councils at different times. Currently, at Institute IMI of Univ. Complutense and ‘Fundación Gadea Por La Ciencia’.

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The following is a link is to the publications by Juan Luis Vázquez:

<https://scholar.google.com/citations?user=gyL3CZ0AAAAJ%22&user=F-FXWkMAAAAJ>

10 selected papers in recent years

- Kienzler, Clemens; Koch, Herbert; Vázquez, Juan Luis. Flatness implies smoothness for solutions of the porous medium equation. *Cal. Var. PDEs* **57**, 1 (2018), 57:18. MR3749373
- Carrillo, J. A.; Huang, Y.; Santos, M. C.; Vázquez, J. L. Exponential Convergence Towards Stationary States for the 1D Porous Medium Equation with Fractional Pressure. *J. Differential Equations* **258** (2015), 736–763. MR3279352.
- Vázquez, J. L. Fundamental solution and long time behaviour of the PME in Hyperbolic Space. *J. Math. Pures Appl.* (9) **104** (2015), no. 3, 454–484. MR3383174.
- Perthame, B; Quirós, F.; Vázquez, J. L. The Hele-Shaw asymptotics for mechanical models of tumor growth. *Arch. Ration. Mech. Anal.* **212** (2014), no. 1, 93–127. MR3162474
- Serfaty, Sylvia; Vázquez, J. L. A Mean Field Equation as Limit of Nonlinear Diffusion with Fractional Laplacian Operators. *Calc. Var. Partial Differential Equations* **49** (2014), no. 3-4, 1091–1120. MR3168624.
- Caffarelli, Luis; Soria, Fernando; Vázquez, Juan Luis. Regularity of solutions of the fractional porous medium flow. *J. Eur. Math. Soc. (JEMS)* **15** (2013), no. 5, 1701–1746. MR3082241
- De Pablo, Arturo; Quirós, Fernando; Rodríguez, Ana; Vázquez, Juan Luis. A general fractional porous medium equation. *Comm. Pure Appl. Math.* **65** (2012), no. 9, 1242–1284. MR2954615
- Caffarelli, Luis; Vazquez, Juan Luis. Nonlinear porous medium flow with fractional potential pressure. *Arch. Ration. Mech. Anal.* **202** (2011), no. 2, 537–565. MR2847534
- Vázquez, J. L., Nonlinear diffusion with fractional Laplacian operators 2012, *Nonlinear Partial Differential Equations: Proceedings of The Abel Symposium 2010*.
- Blanchet, Adrien; Bonforte, Matteo; Dolbeault, Jean; Grillo, Gabriele; Vázquez, J. L. Asymptotics of the fast diffusion equation via entropy estimates. *Arch. Ration. Mech. Anal.* **191** (2009), no. 2, 347–385. MR2481073
- Lu, Peng ; Ni, Lei ; Vázquez, Juan-Luis ; Villani, Cédric. Local Aronson-Bénilan estimates and entropy formulae for porous medium and fast diffusion equations on manifolds. *J. Math. Pures Appl.* (9) **91** (2009), no. 1, 1–19. MR2487898

Other academic and scientific positions

- * Director of Departamento de Matemáticas at UAM, 1989–90.
- * Spanish person-in-charge for the European Programme “Free Boundary Problems”, of European Science Foundation, years 1994–98 (shared with Ildefonso Díaz and Miguel Angel Herrero).
- * President of SEMA, Sociedad Española de Matemática Aplicada, sept. 1996 – sept 1998.
- * Member of the Spanish Committee for International Mathematical Union (IMU), years 1998–99.
- * Vicedean at Facultad de Ciencias, Universidad Autónoma de Madrid, 1999–2000.
- * Spanish Committee organizing the World Mathematical Year 2000 in Spain. Member of the Permanent Executive Board, 1999–2000.
- * Member of the Scientific Committee of CRM (Centre de Recerca Matemàtica), Barcelona, 2003.
- * President of the Scientific Committee of Real Soc. Mat. Española (RSME), 2007–2010.
- * Founding member of Confederación Española de Sociedades Científicas (COSCE), member

of the First Governing Board (Junta de Gobierno), 2004-2009. President of the Study Group LECYT informing on the Science Law prepared by the Government, 2009–2010.

* Member of different committees and evaluation agencies in different years, working for Ministerio de Educación y Ciencia or MICINN, Agencia Nacional de Evaluación(ANEP), Agence AERES in France, ICREA in Catalunya, the Basque Government, and Premio Jaume I.

Other merits and distinctions

* International Congress “Nonlinear Diffusion: Mathematics and Applications” held in El Escorial, 26–29 June 2007, on the occasion of the author’s 60th anniversary.

* Author of numerous expository articles on scientific topics in newspapers, blogs or periodic publications.

* Author speaks fluent Spanish, English, French and Italian, having lectured extensively in those languages. He has a working level of German, Russian, Latin, Catalan, and Portuguese, and reads some other languages.

* Double Special Dedicated Volume “Nonlinear Partial Differential Equations” of the *Journal Nonlinear Analysis Theory Methods & Applications*, in honor of Juan Luis Vázquez for his 70th birthday. Vols. 137 and 138, 2016. ISSN 0362-546X, 37 articles plus Foreword, 99 authors, 425+447 pgs.

* Congress “Nonlinear diffusion and free boundary problems. An international conference on the occasion of the 70th anniversary of Juan Luis Vázquez”. UAM Madrid (Spain). Organized by Matteo Bonforte (UAM, Spain) and Fernando Quirós (UAM, Spain), at Facultad de Ciencias, Univ. Autónoma de Madrid, May 17-19, 2017.