

José-Manuel REY

MATHEMATICIAN

DEPARTMENT OF ECONOMIC ANALYSIS
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1. EDUCATION

- 1995 Ph.D. Mathematics.**
Faculty of Mathematics.
Complutense University of Madrid (Spain).
Title of PhD dissertation: "*Geometry of self-similar measures*".
Qualification: *Cum Laude*. Best thesis award (Faculty of Mathematics).
- 1989-91 M.Sc. Applied Mathematics.**(2 years degree).
Department of Mathematics.
Complutense University of Madrid (Spain).
- 1984-89 B.Sc. Mathematics.** (5 years degree).
Faculty of Mathematics.
Autonomous University of Madrid (Spain).

2. PROFESSIONAL EXPERIENCE

- >2000 Associate Professor**(with tenure).
Department of Economic Analysis.
Complutense University of Madrid(Spain).
- 2017 Visiting Scholar** (February-June).
Department of Psychology.
Harvard University (USA).
- 2016 Visiting Scholar** (February-April).
Department of Applied Mathematics.
Technical University of Madrid (UPM) (Spain).
- 2015 Visiting Scholar** (February-July).
Department of Psychology, and Institute for Quantitative Social Science.
Harvard University (USA).

- 1999 Visiting Scholar** (January).
Isaac Newton Institute for Mathematical Sciences.
Cambridge University (UK).
- 1997-99 Assistant Professor.**
Department of Economic Analysis.
Complutense University of Madrid(Spain).
- 1996 Visiting Scholar**(July-December).
Centre for Nonlinear Dynamics and its Applications.
University College London (UK).
- 1996 Visiting Scholar**(April-July).
Mathematical Institute.
University of St. Andrews, Scotland(UK).
- 1993 Visiting Researcher**(February-September).
Department of Applied Mathematics.
School of Agricultural Engineering.
Technical University of Madrid (Spain).
- 1989-96 Assistant Professor.**
Department of Economic Analysis.
Complutense University of Madrid(Spain).

3. PERSONAL GRANTS AND AWARDS

- 2016 Research Fellowship 2016-17.**
Senior Scientist Visiting Program Salvador de Madariaga.
Spanish Ministry of Education.
- 2014 Research Fellowship 2014-15.**
Real Colegio Complutense, Harvard University (USA).
- 2009 Plus New Writers Award 2009.**
+Plus Magazine. Cambridge University (UK).
- 2008 Plus New Writers Award 2008.**
+Plus Magazine. Cambridge University (UK).
- 1998 Doctoral Dissertation Award** (1995 Best Thesis in Mathematics).
Complutense University of Madrid.
- 1996 Postdoctoral Grant** (One Year Abroad).
Complutense University of Madrid.

4. TEACHING EXPERIENCE

▷Undergraduate

- >1989, Faculty of Economics, Complutense University of Madrid.
- **Dynamic Optimization and Games**(4th year, 4 year degree).
[yrs. 12/13, 13/14, 14/15, 15/16, 16/17, 17/18]

- **Mathematics III** (Optimization and Dynamics) (2nd year, 4 year degree).[\[in English\]](#)
[yrs. 10/11, 11/12, 12/13, 13/14, 14/15, 15/16]
- **Mathematics III** (Optimization and Dynamics) (2nd year, 4 year degree).
[yrs. 11/12, 12/13, 14/15, 17/18]
- **Microeconomics III** (Production Theory)(2nd year, 4 year degree).
[yr. 13/14]
- **Game Theory** (3rd year, former 5 year degree).
[yrs.03/04, 04/05, 05/06, 06/07, 07/08, 08/09, 09/10, 11/12, 12/13].
- **Dynamic Optimization** (3rd year, former 5 year degree).
[yrs. 00/01, 01/02, 02/03, 03/04, 04/05, 05/06, 06/07, 07/08, 08/09, 09/10, 10/11].
- **Dynamical Systems** (2nd year, former 5 year degree).
[yrs. 91/92, 92/93, 94/95, 95/96, 96/97, 99/00, 00/01, 01/02].
- **Introduction to Mathematics for Economics** (1st year, former 5 year degree).
[yrs. 02/03, 03/04, 04/05, 05/06, 06/07]
- **Mathematical Programming** (2nd year, former 5 year degree).
[yrs. 02/03, 03/04, 04/05, 05/06, 06/07]
- **Mathematical Analysis** (1st year, former 5 year degree).
[yrs. 89/90, 90/91, 91/92, 95/96, 98/99, 00/01, 02/03, 06/07]
- **Linear Algebra** (1st year, former 5 year degree)
[yrs. 96/97, 97/98, 98/99, 99/00]

▷Posgraduate

- **Mathematical Methods for Economic Analysis.**
M.Sc.Public Economics, Institute of Fiscal Studies. Ministry of Finance (Spain).
[yrs. 92/93,93/94,94/95]
- **Nonlinear Time Series Analysis.**
Ph.D. program, Department of Economic Analysis.
Complutense University of Madrid
[yrs. 97/98, 98/99]

5. FUNDED RESEARCH PROJECTS

14. **2016-19** Analysis and modelling of soil attributes and formation factors by fractal techniques, data mining and mathematical morphology.
Funding agency: Ministry of Science and Innovation, Spain.Ref. AGL2015-69697-P
PI: Miguel Angel Martín (Technical University of Madrid.)
13. **2012-15** Analysis, parameterization and modelling of soil and its physical properties by means of fractal techniques and affine mathematical methods.
Funding agency: Ministry of Science and Innovation, Spain.Ref. AGL2011-25175
PI: Miguel Angel Martín (Technical University of Madrid.)
12. **2009-12** Stochastic calculus with applications to Social Sciences.
Funding agency: Ministry of Science and Innovation, Spain.Ref. MTM2009-12672.
PI: Manuel Morán (Complutense University of Madrid.)
11. **2007-10** Porous structure, hydraulic properties and pollutant transport in structured soils: parameterization, modelling and simulation by fractal and affine methods.
Funding agency: Ministry of Science and Technology, Spain. Ref. AGL2007-62648.
PI: Miguel Angel Martín (Technical University of Madrid.)

10. 2007 Scale Dependences in Soil and Hydrologic Systems.
Funding agency: Ministry of Science and Technology, Spain. Ref. AGL2007-28609E.
PI: Miguel Angel Martín (Technical University of Madrid.)
9. 2007-10 Nonlinear stochastic equilibria: economic and environmental applications.
Funding agency: Ministry of Science and Technology, Spain. Ref. MTM2006-02372.
PI: Manuel Morán (Complutense University of Madrid.)
8. 2004-07 Fractal analysis and modelling of soil-water interaction. Application to the quantitative characterization of illuviation processes and their impact.
Funding agency: Ministry of Science and Technology, Spain. Ref. AGL2004-04079/AGR.
PI: Miguel Angel Martín (Technical University of Madrid.)
7. 2003-06 Dynamics and geometry of stochastic equilibria.
Funding agency: Ministry of Science and Technology, Spain. Ref. BFM2003-08204.
PI: Manuel Morán (Complutense University of Madrid.)
6. 2000-03 Separation of deterministic components in time series processing.
Funding agency: Ministry of Science and Technology, Spain. Ref. BX2000-0639.
PI: Manuel Morán (Complutense University of Madrid.)
5. 2000-03 Fractal parametrization and modelling to quantify soil quality and to simulate soil degradation processes.
Funding agency: Ministry of Science and Technology, Spain. Ref. REN2000-1542.
PI: Miguel Angel Martín (Technical University of Madrid.)
4. 2000-03 Fractal modelling and testing of soil hydraulic pedotransfer functions in order to quantify degradation of soils at the southern region of Madrid.
Funding agency: Comunidad Autónoma de Madrid, Spain.
PI: Miguel Angel Martín (Technical University of Madrid.)
3. 1998-00 Analysis of spatial correlations in time series.
Funding agency: Ministry of Science and Technology, Spain. Ref. DGES PB97-0301.
PI: Manuel Morán (Complutense University of Madrid.)
2. 1996-98 Nonlinear analysis of time series for financial markets.
Funding agency: Ministry of Science and Technology, Spain. Ref. DGES PS95-0193.
PI: Manuel Morán (Complutense University of Madrid.)
1. 1992-94 Detection of deterministic chaos in sea wave height time series.
Funding agency: Public Entity Spanish Ports, Ministry of Public Works and Transports.
PI: Manuel Morán (Complutense University of Madrid.)

6. LIST OF PUBLICATIONS

6.1 ARTICLES in REFEREED ISI JOURNALS

30. Evolutionary Dynamics of Price Dispersion with Market-Dependent Costs .
Francisco Álvarez, José-Manuel **Rey**, and Raúl G. Sanchís.
Computational Economics (2017) <https://doi.org/10.1007/s10614-017-9770-9>
29. Pricing Strategy versus Heterogeneous Shopping Behavior under Market Price Dispersion.
Francisco Álvarez, José-Manuel **Rey**, and Raúl G. Sanchís.
Abstract and Applied Analysis Volume 2016 (2016) Article ID 3254240, 8 pages.
28. Consumer's Response to Price Distribution and σ -Overload under Time Allocation.
Francisco Álvarez, José-Manuel **Rey**, and Raúl G. Sanchís.
Journal of Computational and Applied Mathematics **291**(2016)242- 256.

27. [Choice Overload, Satisficing Behavior, and Price Distribution in a Time Allocation Model.](#)
Francisco Álvarez, José-Manuel **Rey**, and Raúl G. Sanchís.
Abstract and Applied Analysis, Volume 2014 (2014) Article ID 569054, 9 pages.
26. [Numerical Analysis of a Time Allocation Model Accounting for Choice Overload.](#)
Raúl G. Sanchís, José-Manuel **Rey**, and Francisco Álvarez.
International Journal of Computer Mathematics (2013) [June] 1-12
25. [Sentimental Equilibria with Optimal Control.](#)
José-Manuel **Rey**.
Mathematical and Computer Modelling **57**(7-8) (2013) 1965-1969.
24. [A Mathematical Model of Sentimental Dynamics Accounting for Marital Dissolution.](#)
José-Manuel **Rey**.
PLoS ONE **5**(3) e9881 (2010).
23. [On the Fractal Modeling of Biomass Distributions: an Application to Size Class in Fisheries.](#)
Carlos García-Gutiérrez, Miguel Ángel Martín, and José-Manuel **Rey**,
Ecological Complexity **6**(2009)246-253.
22. [Basic Quantization Properties of Balanced-Entropy.](#)
José-Manuel **Rey**.
Geoderma **134** (3-4) (2006) 425-427.
21. [Inter-Scale Behavior of Balanced Entropy for Soil Texture.](#)
José-Manuel **Rey**, Eloísa Montero, and Miguel Ángel Martín.
Geoderma **134** (3-4) (2006) 415-425.
20. [The Balanced Entropy Index to Characterize Soil Texture for Soil Water Retention Estimation.](#)
Miguel Ángel Martín, Yakov A. Pachepsky, José-Manuel **Rey**, Fco. Javier Taguas,
and Walter J. Rawls.
Soil Science **170**(10) (2005) 759-766.
19. [An Entropy-Based Heterogeneity Index for Size Distributions in Earth Science.](#)
Miguel Ángel Martín, José-Manuel **Rey**, and Fco. Javier Taguas.
Ecological Modelling **182**(3-4) (2005) 221-228.
18. [An Entropy-Based Parameterization of Soil Texture Via Fractal Modelling of Particle-Size Distribution.](#)
Miguel Ángel Martín, José-Manuel **Rey**, and Fco. Javier Taguas.
Proceedings of the Royal Society of London, Series A **457** (2001) 937-948.
17. [On the Role of Shannon's Entropy as a Measure of Heterogeneity.](#)
Miguel Ángel Martín and José-Manuel **Rey**.
Geoderma **98** (2000) 1-2.
16. [Dimension of a Measure.](#)
Pertti Mattila, Manuel Morán and José-Manuel **Rey**.
Studia Mathematica **142**(3) (2000) 219-233.
15. [The Role of Billingsley Dimensions in Computing Fractal Dimensions on Cantor-Like Spaces.](#)
José-Manuel **Rey**.
Proceedings of the American Mathematical Society **128** (2000) 561-572.
14. [Singularity of Self-Similar Measures with respect to Hausdorff Measures.](#)
Manuel Morán and José-Manuel **Rey**.
Transactions of the American Mathematical Society, **350** (1998) 2297-2310.

13. Geometry of Self-Similar Measures.
Manuel Morán and José-Manuel **Rey**.
Annales Academiae Scientiarum Fennicae Mathematica **22** (1997) 365-386.

6.2 OTHER REFEREED ARTICLES and PUBLICATIONS

12. Whatever Happened to Adam and Eve's Relationship? [in Spanish]
José-Manuel **Rey**.
Pensamiento Matemático **5**(1) (2015)75-82.
11. Maximizing and Satisficing in a Time Allocation Model.
Raúl G. Sanchís, José-Manuel **Rey**, Francisco Álvarez.
International Journal of Complex Systems in Science. **4**(1)(2014) 1-6.
10. Societal Mathematics and Social Syndromes.[in Spanish]
José-Manuel **Rey**.
Pensamiento Matemático **3**(1) (2013)167-176.
9. Optimal Control of Long-Term Sentimental Dynamics.
José-Manuel **Rey**.
Modelling for Engineering and Human Behaviour.
Jódar, L., Acedo, L., Cortés, J.C., (eds.)
IMM, Polytechnic University of Valencia (2012). ISBN:78-84-695-2143-4.
8. The Double Helix of the Social Sciences.[in Spanish]
José-Manuel **Rey**.
*Matematicalia***7** (2) June (2011).
7. Survival Odds: Are All Soldiers Equal?
José-Manuel **Rey**.
+Plus Magazine,**54** (2010).
6. The Carol Syndrome.
José-Manuel **Rey**.
+Plus Magazine,**51** (2009).
▷ Winner of the [Plus New Writers Award 2009](#)(Cambridge University).
▷ Reprinted in [\[The, Commutator\]](#)**3**(1)(2012) (September)
5. If We All Go for the Blonde.
José-Manuel **Rey**.
+Plus Magazine,**47** (2008).
▷ Winner of the [Plus New Writers Award 2008](#) (Cambridge University).
4. Negishi's Stability without Recontracting.
José-Manuel **Rey**.
An Eponymous Dictionary of Economics (A Guide to Laws and Theorems Named after Economists).
Segura, J. and Rodríguez Braun, C. (eds.).
Edward Elgar (2005).

3. [A Formalism for the Dimensional Analysis of Time Series.](#)
Manuel Morán and José-Manuel **Rey**.
IDEAS-RePec, Society for Computational Economics (1999).
Series *Computing in Economics and Finance* 1999, number 1331.
2. [Geometry of Self-Similar Sets and Measures.](#) [in Spanish]
José-Manuel **Rey**.
Universidad Complutense de Madrid, 1995, ISBN 84-669-0717-3.
1. [Detection of Chaos in Time Series. An Application to Spanish Sea Swell.](#)
Eugenia Mera, Manuel Morán, and José-Manuel **Rey**.
Working Paper #9507, Faculty of Economics, Complutense University, 1995.

6.3 REVIEW OF SCIENTIFIC PUBLICATIONS

- >Jan 2000. Reviewer of [Zentrablatt MATH](#) (European Mathematical Society)
60 reviews published (by December 2015)

6.4 BOOKS

4. [Mathematics for the Natural Sciences and Technology I](#) [in Spanish]
Miguel Ángel Martín, Manuel Morán, José-Manuel **Rey**, Miguel Reyes.
Bruño, 2002. ISBN: 84-216-4810-1.
3. [Mathematics for the Natural Sciences and Technology II](#) [in Spanish]
Miguel Ángel Martín, Manuel Morán, José-Manuel **Rey**, Miguel Reyes.
Bruño, 2002. ISBN: 84-216-4810-1.
2. [Mathematics for the Social Sciences I.](#) [in Spanish]
Miguel Ángel Martín, Manuel Morán, José-Manuel **Rey**, Miguel Reyes.
Bruño, 2000. ISBN: 84-216-4810-1.
1. [Mathematics for the Social Sciences II.](#)[in Spanish]
Miguel Ángel Martín, Manuel Morán, José-Manuel **Rey**, Miguel Reyes.
Bruño, 2000. ISBN: 84-216-4810-1.

7. LIST of PRESENTATIONS

7.1 COMMUNICATIONS in INTERNATIONAL CONFERENCES

- 28 Jul 2017 *Optimal pricing from shopping time distributions*
Mathematical Modelling in Engineering and Human Behavior 2017.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).[presented by R. G. Sanchís]
- 27 Jul 2016 *Market dynamics under price and search cost dispersions*
Mathematical Modelling in Engineering and Human Behavior 2016.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).[presented by R. G. Sanchís]

- 26. Sep 2015** *Pricing strategy versus shopping behavior under market price dispersion*
Mathematical Modelling in Engineering and Human Behavior 2015.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).[presented by R. G. Sanchís]
- 25. Sep 2014** *Consumer's response to price distribution in a time allocation model.*
Mathematical Modelling in Engineering and Human Behavior 2014.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).[presented by F. Álvarez]
- 24. Sep 2013** *Maximizing and satisficing in a choice model based in time allocation.*
Mathematical Modelling in Engineering and Human Behavior 2013.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).[presented by R. G. Sanchís]
- 23. Sep 2012** *A time allocation model accounting for the paradox of choice.*
Mathematical Modelling in Engineering and Human Behavior 2012.
Institute for Multidisciplinary Mathematics.
Polytechnic City of Innovation.
Valencia (Spain).
- 22. Sep 2011** *Our love was to last forever. Hence we are breaking up now.*
11th Workshop on Optimal Control, Dynamic Games and Nonlinear Dynamics.
CeNDEF, University of Amsterdam.
Amsterdam (Netherlands).
- 21. Jun 2008** *Love is not enough: a mathematical model explaining couple breakup.*
Nonlinear 2008.Universitat Politècnica de Catalunya.
Barcelona (Spain).
- 20. Sep 2007** *(Durable) love is a very unstable thing.*
EMPG38 (38th meeting of the European Mathematical Psychology Group.)
University of Luxembourg
Luxembourg.
- 19. Sep 2007** *Gauging Shannon's entropy to evaluate heterogeneity of mass-size distributions.*
Nonlinear 2007.Universidad de Castilla-La Mancha.
Ciudad Real (Spain).
- 18. Jul 2004** *Properties and uses of the balanced-entropy index for soil textural analysis.*
PEDOFRACT'04. International Workshop on Fractal Mathematics Applied to Soil
and Related Systems.
El Barco de Ávila(Spain).
- 17. Jun 2004** *A generalization of Shannon's entropy to evaluate heterogeneity of mass-size
distributions.*
Workshop on Mathematical Economics.
Complutense University of Madrid.
Madrid (Spain).

16. **Feb 2003** *A simple entropy index to evaluate heterogeneity of mass-size distributions: application to soil texture.*
Applied Mathematics & Applications of Mathematics (AMAM 2003).
Nice (France)
15. **Jul 2002** *Dimensions of measures and correlation dimensions.*
X Congresso di Analisi Reale e Teoria della Misura (C.A.R.Te.Mi. X).
Ischia (Italy).
14. **Jun 2002** *Balancing entropy to measure biodiversity and soil texture.*
PEDOFRACT'04. International Workshop on Fractal Mathematics Describing Soil and Other Heterogenous Systems.
El Barco de Ávila (Spain).
13. **Jun 2001** *Properties of the dimension of a measure and the behavior of correlation dimensions.*
Fractals in Graz 2001. University of Graz.
Graz (Austria).
12. **Jul 2000** *Dimension of a measure.*
VI International Conference on Harmonic Analysis and Partial Differential Equations.
El Escorial (Spain).
11. **Sep 2000** *Entropy-based parametrization of textures in disordered media.*
IX Congresso di Analisi Reale e Teoria della Misura (C.A.R.Te.Mi. IX).
Grado (Italia). [presented by M.A. Martín]
10. **Sep 1999** *Dimensional analysis of time series.*
International Workshop on Chaotic Dynamics and Fractals in Geosciences.
School of Agricultural Engineering. Technical University of Madrid.
Madrid (Spain).
9. **Jun 1999** *A formalism for the dimensional analysis of time series.*
CEF'99 (Computing in Economics and Finance).
Fifth International Conference of the Society for Computational Economics.
Boston College, Chesnut Hill, Massachusetts (USA)
8. **Jun 1999** *Dimension of a measure.*
International Workshop on the Structure of Hyperbolic Measures.
Complutense University of Madrid.
Madrid (Spain).
7. **Jan 1999** *On the dimension of a measure.*
Workshop on Multifractals and Applications.
Isaac Newton Institute for Mathematical Sciences, Cambridge University.
Cambridge (UK).
6. **Sep 1998** *On the role of geometry in computing dimensions within fractal spaces.*
VIII Congresso di Analisi Reale e Teoria della Misura (C.A.R.Te.Mi. VIII),
Maiori (Italy)
5. **Sep 1998** *Billingsley dimension and fractal geometry.*
Conference on Fractal Geometry and Stochastics II.
Greifswald (Germany).

4. **Jul 1996** *Packing and Hausdorff geometry of self-similar measures.*
VII Congresso di Analisi Reale e Teoria della Misura (C.A.R.Te.Mi. VII).
Ischia (Italy).
3. **Jul 1995** *A new method for detecting chaotic dynamics in time series. An application to the analysis of significant wave height series.*
International Union of Geodesy and Geophysics (IUGG), XXI General Assembly,
Boulder, Colorado, (EE.UU.) [presented by M. Alfonso]
2. **May 1995** *Efficient ways of covering cylinders by balls in self-similar constructions*
ERGOFRACT'95 (International Meeting on Chaos, Fractals, and Ergodic Theory),
Las Palmas de Gran Canaria (Spain). [presented by M. Morán]
1. **May 1995** *Hausdorff singularity of self-similar measures*
ERGOFRACT'95 (International Meeting on Chaos, Fractals, and Ergodic Theory),
Las Palmas de Gran Canaria (Spain).

7.2 INVITED RESEARCH LECTURES at CONFERENCES and SEMINARS

25. **Mar 2017** *The Carol syndrome: romantic attractiveness and inhibition.*
Department of Psychology.
Harvard University.
Cambridge, MA (USA).
24. **Abr 2017** *The orchestra effect.*
Department of Psychology.
Harvard University.
Cambridge, MA (USA).
23. **Sep 2016** *Our love was to last forever [Plenary Speaker]*
Paradigmatic Models in Social Science
11th International Workshop "Topics in Nonlinear Dynamics"
Italian Society for Chaos and Complexity.
Politecnico di Milano, Milano (Italy)
22. **Jul 2016** *And they lived (not) happily ever after. [Plenary Speaker]*
Why are (not) we happy?
Summer Course. Complutense University of Madrid.
El Escorial (Spain)
21. **May 2016** *Love Engineering*
Schools of Agricultural Engineering.
Technical University of Madrid (Spain),
20. **Abr 2015** *Is it possible to make love last?*
Real Colegio Complutense at Harvard,
Harvard University
Cambridge, MA (USA).
19. **Mar 2015** *Our love was to last forever.*
Department of Psychology.
Harvard University
Cambridge, MA (USA).

- 18. May 2014** *Whatever happened to Adam and Eve's love relationship?* **[Plenary Speaker]**
III International Workshop "Mathematics Everywhere".
Centro Internacional de Encuentros Matemáticos.
Castro Urdiales, Cantabria (Spain).
- 17. Jun 2012** *Societal mathematics and social syndromes.* **[Plenary Speaker]**
II International Workshop "Mathematics Everywhere".
Centro Internacional de Encuentros Matemáticos.
Castro Urdiales, Cantabria (Spain).
- 16. Sep 2011** *Optimal control of long-term sentimental dynamics.* **[Plenary Speaker]**
Conference "Mathematical Modelling in Engineering Human Behavior".
Institute for Multidisciplinary Mathematics. Polytechnic City of Innovation,
Valencia (Spain).
- 15. May 2011** *Society minus science equals crisis?* **[Plenary Speaker]**
Workshop "The Necessary Scientific Society: More Science, Less Crisis."
Universidad Internacional Menéndez Pelayo.
Sevilla (Spain).
- 14. Dic 2009** *The invisible hand and the platinum blonde.*
Research Seminar. Department of Mathematics. Public University of Navarre.
Pamplona (Spain).
- 13. Dic 2007** *Control and failure of sentimental dynamics*
Research Seminar. Department of Mathematics. Public University of Navarre.
Pamplona (Spain)
- 12. May 1999** *Geometry of self-similar measures.*
Seminar. Department of Mathematics.
Autonomous University of Madrid.
Madrid (Spain).
- 11. Jun 1998** *A formalism for the dimensional analysis of time series.*
Research Seminar. Department of Mathematics.
University of Castilla-La Mancha
Ciudad Real (Spain).
- 10. May 1997** *Billingsley dimensions on Cantor-like spaces.*
Fractal Geometry Seminar. Complutense University and Technical University.
Madrid (Spain).
- 9. Nov 1996** *Nonlinear signal analysis: some results and practicalities.*
Nonlinear Dynamics Seminar. Centre for Nonlinear Dynamics and its Applications.
University College London
London (UK)
- 8. Nov 1996** *Hausdorff and packing self-similar geometry.*
Research Seminar. Department of Mathematics.
University College London.
London (UK)

- 7. Jun 1996** *Billingsley dimensions on self-similar spaces.*
Analysis Seminar. Mathematical Institute.
University of St. Andrews.
St. Andrews (Scotland)
- 6. May 1996** *Geometric-size properties of self-similar measures.*
Analysis Seminar. Mathematical Institute.
University of St. Andrews.
St. Andrews (Scotland)
- 5. Mar 1996** *Local representation of Hausdorff and packing dimensions.*
Fractal Geometry Seminar.
Complutense University and Technical University.
Madrid (Spain).
- 4. Jun 1995** *Geometry of self-similar measures.*
Research Seminar. Department of Mathematical Analysis.
Complutense University of Madrid.
Madrid (Spain).
- 3. Jun 1994** *Product measures on self-similar spaces.*
Research Seminar. Department of Mathematical Analysis.
Complutense University of Madrid.
Madrid (Spain).
- 2. Dic 1993** *Detection of chaos in experimental signals.*
Mathematics Seminar. Schools of Engineering (Civil, Agricultural and Architecture).
Technical University of Madrid.
Madrid (Spain).
- 1. Abr 1993** *Nonlinear time series analysis.*
Research Seminar. Department of Applied Mathematics.
School of Agricultural Engineering.
Technical University of Madrid.
Madrid (Spain).

7.3 INVITED LECTURES on POPULARIZATION OF SCIENCE [in spanish]

UNIVERSITY LEVEL

- 6. Mar 2011** *Mathematics and everything else.*
Faculty of Economics and Business Administration.
Autonomous University of Madrid (Spain).
- 5. Nov 2010** *Game theory and economics.*
Faculty of Economics and Business Administration.
Autonomous University of Madrid (Spain).
- 4. Dic 2010** *Not without mathematics*
School of Agricultural Engineering.
Technical University of Madrid (Spain).

- 3. Nov 2007** *Could you live without mathematics?*
Faculty of Environmental Sciences.
University of Castilla-La Mancha. Toledo (Spain).
- 2. Nov 2004** *Why is mathematics useful?*
Faculty of Computer Sciences.
Technical University of Madrid (Spain).
- 1. Sep 2004** *Why mathematics?*
School of Agricultural Engineering.
Technical University of Madrid (Spain).

HIGH SCHOOL LEVEL and GENERAL AUDIENCE

- 6. Jun 2004** *Mathematics and the real world.*
Colegio Joyfe (Madrid)
- 5. May 2004** *Mathematics and the real world.*
Colegio Nuevo Equipo (Madrid)
- 4. May 2004** *What is mathematics for?*
Faculty of Education. University programme for older students.
University of Valladolid.
- 3. May 2004** *Mathematics and the real world.*
Colegio Arturo Soria (Madrid).
- 2. Abr 2004** *Why you need mathematics*
Military Prison. Alcalá de Henares (Madrid)
- 1. Sep 2000** *Invitation to mathematics for the social sciences.*
Colegio Nuevo Equipo (Madrid).

7.4 INVITED LECTURES on UNIVERSITY EDUCATION

- 2. Abr 2007** *Pilot experience on the European Higher Education Space.*
School of Agricultural Engineering.
Technical University of Madrid (Spain).
- 1. Jun 2006** *Teaching mathematics in the European Higher Education Space.*
Faculty of Economics. University of Alicante (Spain).

7.5 COURSES GIVEN

EDUCATIONAL TRAINING

- 5. Apr 2009** *Stellar mathematical moments in History. (9 hours)*
Training Programme for Mathematical Teachers.
Territorial Centre of Training and Innovation (CTIF) Madrid Sur, Leganés (Spain).
- 4. Jan 2009** *The invisible universe of mathematics. (21 hours)*
Training Programme for Mathematical Teachers.
Territorial Centre of Training and Innovation (CTIF) Madrid Sur, Fuenlabrada (Spain).
- 3. Feb 2008** *Societal mathematics and social syndromes. (6 hours)*
Training Programme for Mathematical Teachers.
Centre of Training and Innovation. CAP Getafe (Spain).

2. **May 2007** *Mathematics of strategy. (6 hours)*
Training Programme for Mathematical Teachers.
Territorial Centre of Training and Innovation. CAP Fuenlabrada (Spain).

POST-GRADUATE LEVEL

1. **Jul 2005** *Multidimensional chaos. (5 hours)*
Summer School.
University of Teruel (Spain) .

8. ORGANIZATION OF CONFERENCES and COURSES

8.1 INTERNATIONAL CONFERENCES

4. **May 2012** PEDOFRACT'12. International Workshop on Scaling in Particulate and Porous Media: Modeling and Use in Predictions
A Coruña (Spain)
Member of the Organizing Committee. Member of the Scientific Committee.
3. **July 2007** PEDOFRACT'07. International Workshop on Scale Dependences in Soil and Hydrologic Systems.
El Barco de Ávila (Spain)
Member of the Organizing Committee.
2. **July 2004** PEDOFRACT'04. International Workshop on Fractal Mathematics describing Soil and Related Heterogeneous Systems.
El Barco de Ávila (Spain)
Member of the Organizing Committee.
1. **July 2002** PEDOFRACT'02. International Workshop on Fractal Mathematics describing Soil and Heterogeneous Systems.
El Barco de Ávila (Spain)
Member of the Organizing Committee.

8.2 COURSES

3. **July 2016** Why are (not) we happy?
Summer Course. Complutense University of Madrid.
El Escorial (Spain), July 11-13
Co-Director of the course.
2. **May 2011** The Necessary Scientific Society: More Science, Less Crisis. (14 hours)
Universidad Internacional Menéndez Pelayo. Sevilla (Spain)
Organizer and Director.
1. **Ene 2009** The invisible universe of mathematics. (21 hours)
Territorial Centre of Training and Innovation (CTIF) Madrid Sur, Fuenlabrada.
Director and Main Speaker.

9. PhD THESES SUPERVISED

- 1. Jun 2013** *Time microeconomics: on the allocation of time and choice overload*
authored by Raúl G. Sanchís.
European Mention Doctorate.
Doctoral Dissertation Award (2013 Best Thesis in Economics).
Complutense University of Madrid (Spain).

10. OTHER SCIENTIFIC MERITS

10.1 REFEREEING for PEER-REVIEW JOURNALS

- SIAM Journal of Mathematics.
- Nonlinearity.
- Pure and Applied Geophysics.
- Applied Mathematical Letters.
- Journal of Theoretical Biology.
- PLoS ONE.
- Chaos-An interdisciplinary Journal of Nonlinear Science.
- Health.

10.2 REVIEWER of Zentralblatt MATH(>2000)

10.3 MEMBER of PhD COMMITTEES

- Dec 2016** Quantifying patterns of complexity controlled by parent material at different spatial scales: from drainage network architecture at landscape scale to soil texture
by Joaquín Cámara Gajate.
School of Agricultural Engineering, Technical University of Madrid (Spain).
- Oct 2010** Characterization and modeling of soil texture and structure using image processing techniques and fractal geometry. Application to diffusion in porous media.
by Carlos García-Gutiérrez.
School of Agricultural Engineering, Technical University of Madrid (Spain).
- Jun 2006** Dimension print and self-similar measures with overlapping.
by Victor Ruiz Morcillo
Faculty of Computer Science, Technical University of Madrid (Spain).
- Jun 2004** Continuous Lipschitz dynamic programming. Application to the optimal exploitation of renewable resources under increasing returns.
by José María Maroto
Faculty of Economics, Complutense University of Madrid (Spain).
- May 2003** Application of multifractal analysis techniques to mass-size distributions of soil particles obtained by laser diffraction.
by Eloísa Montero
School of Agricultural Engineering, Technical University of Madrid (Spain).

- Mar 1999** Efficient strategies in future and option markets.
by Juan Garrido
Faculty of Economics. Complutense University of Madrid (Spain).
- Apr 1997** Multifractal Analysis of pore size distribution in soil.
by Javier Caniego
School of Agricultural Engineering. Technical University of Madrid (Spain).
- Oct 1995** Fractal modeling of particle size distribution in soil.
by Francisco Javier Taguas
School of Agricultural Engineering. Technical University of Madrid (Spain).

10.4 EDITORIAL EXPERIENCE

1998-2002 Editorial Coordinator of Mathematics for the Publishing Company Bruño.

10.5 OTHER WRITINGS

1. "1+1"

Rubén Pacheco and **José-Manuel Rey** (2015)

Screenplay for the short film "1+1" directed by Rubén Pacheco (2016).

10.6 MEDIA COVERAGE

- The research on the mathematical modeling of sentimental relationships in José-Manuel **Rey**. [A mathematical model of sentimental dynamics accounting for marital dissolution. PLoS ONE 5\(3\) e9881 \(2010\)](#).
was covered by media worldwide, e.g.
 - [It Takes 30 \(Harvard Medical School, US\)](#)
 - [PhysOrg.com \(UK\)](#)
 - [The Globe and the Mail \(Canada\)](#)
 - [KLTV \(Texas, US\)](#)
 - [Epoca \(Brasil\)](#)
 - [Pravda \(Russia\)](#)
 - [Público \(Spain\)](#)
 - [SINC \(Spain\)](#)
 - [Mathematics for Planet Earth \(France\)](#)
 - [The Atlantic \(Washington, US\)](#)
 - [Need to Know on PBS \(NY, US\)](#)
 - [I \(Portugal\)](#)
 - [Ingenioren \(Denmark\)](#)
 - [El Universal \(Mexico\)](#)
 - [ABC \(Spain\)](#)
 - [Muy Interesante \(Spain\)](#)
- The mathematical modeling on attractive women and dating in José-Manuel **Rey**. [The Carol Syndrome. +Plus Magazine, 51 \(2009\)](#)
was covered by
 - [Salon.com](#)

10.6 MEDIA COLLABORATIONS

- > 2011 "**Julia en la Onda**" (Radio Station ONDA CERO, Spain)
Scientific Commentator for social issues.