

CURRICULUM VITÆ

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1 Summary

Academic profile

Agregação (Univ. Aberta, 2009) and PhD (Heriot-Watt Univ., 1993) in Mathematics; MSc (IST, 1989) in Applied Mathematics; BSc (IST, 1985) in Chemical Engineering. Since July 2019 I am Full Professor of Mathematics at *Universidade Aberta*, Lisbon, Portugal.

Main research contributions

My main areas of research have been in mathematical modelling of coagulation-fragmentation phenomena and of liquid crystal devices using differential equations tools, mainly qualitative methods.

My most recent published work in coagulation type equations was on a generalized exchange-driven growth model (see [1] in section 5.1.1) and on a variety of coagulation type systems, both discrete [2] and continuous [3]. Also relatively recent are works on a model of silicosis disease (see [5], [7], and [8] in section 5.1.1). Previous works include the study of existence and uniqueness of density conserving solutions to coagulation-fragmentation equations (reference [29] in section 5.1.1) where it was first proved that a strong enough fragmentation can prevent gelation to occur. Other contributions to the study of the gelation phenomena include the proof of the occurrence of instantaneous gelation for strong enough coagulation (reference [31] in section 5.1.1) and the proposal of a finite dimensional model for gelation (reference [25] in section 5.1.1). I published the first studies on the extension to coagulation-fragmentation systems of the kind of phase transition behaviour known to occur in Becker-Döring equations (see [26] and [30] in section 5.1.1). Somewhat unexpected, in two studies of coagulation models a relation with nonautonomous predator-prey systems (reference [13] in section 5.1.1) and with competition Lotka-Volterra systems (reference [14] in section 5.1.1) was identified. A number of papers have focused on self-similar solutions in coagulation systems modelling sub-monolayer deposition (see [9, 11, 19, 22] in section 5.1.1, and [3] in section 5.3.1) using qualitative theory methods (invariant regions, centre manifolds, differential inequalities) and asymptotic evaluation of integrals to prove results about the existence and rate of convergence to similarity profiles. Qualitative theory methods seem not to have been used before in this context.

My work on modelling of liquid crystal devices include the study of twist Freedericksz transitions in a liquid crystal cell with pre-twist boundary conditions (see [6], [10] and [17] in section 5.1.1), the study of the bifurcation structure of solutions in a bistable nematic cell (reference [20] in section 5.1.1), and the first rigorous proof of uniqueness of the bifurcating branch of solutions in the Freedericksz transition in a nematic cell with weak anchoring (reference [18] in section 5.1.1).

Most of my research work has been done in collaboration with co-workers (see the relevant references.)

Publication data

- 30 refereed Mathematics papers in journals (and 3 more in Physical Chemistry)
- 1 chapter in refereed international book

Conferences

- More than 30 invited oral presentations in international events, including 1 at the *Institut Henri Poincaré* (Paris), 1 at the *International Centre for Mathematical Sciences* (Edinburgh), and 2 at the *Mathematisches Forschungsinstitut* (Oberwolfach).
- Co-organizer of 8 international conferences, including 1 at the *James Clerk Maxwell Centre* (Edinburgh).

Editorial work

- Editor-in-chief of the *European Mathematical Society Magazine* (formerly *Newsletter*) from July 2020.
- Member of the Editorial Board of the *European Mathematical Society Newsletter* from January 2017 to June 2020.
- Member of the Editorial Board of the *International Journal of Biomathematics and Biostatistics* (2010).
- Co-editor of the special number of *Physica D* dedicated to coagulation-fragmentation processes (vol. 222, 1996).
- Referee in 16 international scientific journals
- Reviewer of the *Mathematical Reviews–MathSciNet* since 2008.

Main teaching related activities

- *Volunteer Lecturer* of the *International Mathematical Union* in the National University of Laos, Vientiane, Laos, in January and February 2018, where I taught the course *Ordinary Differential Equations*, of the MSc programme in Applied Mathematics.
- Lecturer of the short course *Exact solutions of smoothing PDEs* at the *SEAMS School “PDEs for Image Processing: Theory and Numerics”*, Silpakorn University, Bangkok, Thailand, (January 2018)
- Visitor to the National University of Laos, Vientiane, Laos, between December 2016 and July 2017, supported by an Erasmus Mundus grant, where I taught several free courses to university staff (*Differential equations in population models*, *Harmonic Analysis and applications*, *Bifurcation problems in liquid crystal cells*, and *First order partial differential equations: method of characteristics and weak solutions.*)

- Lecturer of the short course *Infinite-dimensional dynamical systems and coagulation-fragmentation equations* at the *CIMPA School “Introduction to the mathematical analysis of differential equations and real-life applications”*, Centre Internationale de Mathématiques Pures et Appliquées, Nice, France / National University of Laos, Vientiane, Laos (January 2017)
- Visiting Academic at the African Institute for Mathematical Sciences, Cape Town, South Africa (April 2016, November 2018 and 2019, and February 2021 and 2022), responsible for the courses *Differential Equations in Population Models* (2016) and *Differential Equations* (2018, 2019, 2021, 2022).
- Visiting Academic at the University of Saint Joseph, Macao, China (January–February 2024), responsible for the course *Methods and Techniques for Quantitative Research* of the Doctoral School.
- Associate professor at Univ. Aberta 2005–2019 and Full Professor from 2019, having taught 29 different courses, mainly in Mathematical Analysis, Linear Algebra, and Differential Equations, but also some in Statistics, Stochastic Processes, Geometry, etc., and including some Differential Equations courses at the MSc and PhD levels.
- Auxiliary professor at I.S.T. between 1993 and 2004, having taught 8 different course on Mathematical Analysis and Differential Equations.
- Author of the book *Equações Diferenciais Ordinárias* (Lisbon, IST Press, 2001), an introductory text on ODE, in portuguese.
- Co-editor of the book *Matemática do Planeta Terra* (Lisbon, IST Press, 2014), an overview of the applications of Mathematics to the study of Planet Earth in its physical, geological, ecological, and human aspects, written for non specialist mathematical literate readers.
- Translator into portuguese of the books *Linear Functional Analysis* (Springer, London, 2008) and *Mathematical Modelling in One Dimension: An Introduction Via Difference and Differential Equations* (Cambridge University Press, Cambridge, 2013). Both translations were published by IST Press, Lisbon (in 2008 and 2017, respectively.)
- Supervisor of 2 PhD student (Univ. Aberta, 2005–08 and 2021–) and 12 MSc students (3 Univ. Aberta, 3 UNED/Spain, 3 NUOL/Laos, 3 AIMS/South Africa).
- Coordinator of the PhD programme in Applied Mathematics and Modelling of Univ. Aberta in 2014–2017 and since 2018, and its vice-coordinator in 2017/18.

Other relevant information

- Holder of several administrative offices at Univ. Aberta including member of the *Conselho de Gestão* (Executive Board) and of the *Conselho Geral*, president of the Teaching Staff Evaluation Board, vice-president of the Scientific Council, head of Department, and coordinator of the Mathematics Section.

- Vice-president (2012–14, 2022–2024) and president (2014–16) of the Portuguese Mathematical Society.
- Representative of Portugal in the *International Commission on Mathematical Instruction* of the International Mathematical Union between 2017 and 2020.
- Representative of Portugal in the 2022 General Assembly of the International Mathematical Union.

2 Academic education

2.1 Academic degrees and titles

1. *Agregação* in Mathematics by the Universidade Aberta, Lisboa, Portugal, in 2009. (Examination board: João Luís Cardoso (president), Luísa Mascarenhas, Alberto Pinto, Carlos Rocha, José Francisco Rodrigues, Luís Sanchez, José Miguel Urbano)
2. *Doutoramento* in Mathematics (equivalence) by the Instituto Superior Técnico of the Technical University of Lisbon, Portugal, in 1993.
3. PhD in Mathematics by the Heriot-Watt University, Edinburgh, United Kingdom, in 1993. (Supervisor: Jack Carr; Examiners: Sir John M. Ball, Marshall Slemrod).
4. MSc in Applied Mathematics by the Instituto Superior Técnico of the Technical University of Lisbon, Portugal, in 1989, with the final classification of *Muito Bom* (very good). (Supervisor: Luís T. Magalhães; Examiner: Bento Louro).
5. *Licenciatura* in Chemical Engineering (specialization branch: Chemistry and Processes) by the Instituto Superior Técnico of the Technical University of Lisbon, Portugal, in 1985, with the final classification of 17 (out of 20).

2.2 Complementary Education

1. Training course *Moodle Tools (Mini-tests)* of the Lecturers' Formation Plan of the Universidade Aberta 2016, Lisboa, Portugal, May 2016. (6 hours)
2. Training of trainers course: *Metas Curriculares de Matemática — Ensino Básico: 1^o, 2^o e 3^o ciclos* by the Ministry of Education and Science, Portugal. Course registered in the *Conselho Científico-Pedagógico da Formação Contínua do Ministério da Educação* under the number CCPFC/ACC-73835/13; Lisboa, Portugal, in March 2013. (1 ECTS)
3. Training of trainers course in e-learning (level 1), by the Universidade Aberta, Lisboa, Portugal, in October–December 2007.

3 Academic Career

3.1 Career positions

1. Full Professor in the Section of Mathematics of the Department of Sciences and Technology of the *Universidade Aberta* from July 2019.
2. Associate Professor with *Agregação* in the Section of Mathematics of the Department of Sciences and Technology of the *Universidade Aberta* from December 2009 until July 2019.

3. Associate Professor in the Section of Mathematics of the Department of Exact Sciences and Technology of the *Universidade Aberta* from February 2005 until December 2009.
4. Auxiliary Professor in the Section of Algebra and Analysis of the Department de Mathematics of the IST from November 1993 until February 2005.
5. Teaching Assistent in the Section of Algebra and Analysis of the Department de Mathematics of the IST from December 1989 until November 1993.
6. Intern Teaching Assistent in the Section of Algebra and Analysis of the Department de Mathematics of the IST from October 1989 until December 1989.
7. Undergraduate Teaching Assistent in the Section of Physical Chemistry and Thermodynamics of the Department of Chemical Engineering of the IST from December 1983 until September 1985.

3.2 Temporary positions

1. Visiting Academic at the *African Institute for Mathematical Sciences*, Cape Town, South Africa, from January 31 to February 18, 2022 (online), February 8 to 26, 2021 (online), November 11 to 29, 2019, November 12 to 30, 2018, and from April 11 to 29, 2016.
2. *Sir David Anderson Visiting Fellow* at the Department of Mathematics and Statistics, University of Strathclyde, Glasgow, United Kingdom, from April 1 to May 31, 2018.
3. *Volunteer Lecturer* at the Department of Mathematics of the *National University of Laos*, Vientiane, Laos, from January 13 to February 11, 2018, within the framework of the *Volunteer Lecturer Program* of Commission for Developing Countries of the International Mathematical Union.
4. Pos-Doc at the Department of Mathematics of the *National University of Laos*, Vientiane, Laos, from December 27, 2016 to July 15, 2017, with the support of an Erasmus Mundus grant.

4 Research Center

1. Member of the *Centre of Mathematical Analysis, Geometry, and Dynamical Systems* of the Instituto Superior Técnico, University of Lisbon (Collaborator: 1991–93; Full member: 1993–present)

5 Scientific Publications

(Whenever possible, the following will be indicated: the Impact Factor of the the journal in the year the article was published; the number of citations in the databases *Mathematical Reviews–MathSciNet* (MSN), *Thompson Reuters Web*

of Science (WoS), and *Zentralblatt für Mathematik* (ZbMATH) in the date in the CV cover.)

5.1 Scientific Research Articles in International Journals with Referee

5.1.1 In Mathematics

1. *The continuous version of the generalized exchange-driven growth model*, (submitted, November 2023).
(co-authors: P.K. Barik, J.T. Pinto, R. Sasportes).
2. *Theoretical analysis of a discrete population balance model with sum kernel*, *Port. Math.*, **80** (2023), 343–367.
(co-authors: S. Kaushik, R. Kumar).
(DOI: 10.4171/pm/2103)
(Q?; Impact Factor: ; Citações: MSN: , WoS: , zbMATH:)
3. *The Continuous Redner–Ben-Avraham–Kahng coagulation system: well-posedness and asymptotic behaviour*, *Evol. Equ. Control Theo.*, **12** (5), (2023) 1247–1267.
(co-authors: A.K. Giri, P. Verma).
(DOI: 10.3934/eect.2023010)
(Q?; Impact Factor: ; Citações: MSN: , WoS: , zbMATH:)
4. *Mathematical models of chiral symmetry-breaking — a review of general theories, and adiabatic approximations of the APED system*, *Orig. Life Evol. Biosph.*, **52** (2022), 183–204.
(co-authors: P.C. Diniz, J.A.D. Wattis).
(DOI: 10.1007/s11084-022-09631-w)
(Q3; Impact Factor: ; Citações: WoS:)
5. *Modelling silicosis: dynamics of a model with piecewise constant rate coefficients*, *J. Dyn. Differ. Equ.*, (published online Oct. 12, 2022).
(co-authors: P.R.S. Antunes, J.T. Pinto, R. Sasportes).
(DOI: 10.1007/s10884-022-10213-7; MR ; Zbl)
(Q1; Impact Factor: ; Citações: MSN: , WoS: , zbMATH: 1)
6. *Steady state solutions in a model of a cholesteric liquid crystal sample*, *Afr. Mat.*, **32** (2021), 645–672.
(co-autores: M. Grinfeld, N.J. Mottram, J.T. Pinto, K. Xayxanadasy).
(DOI: 10.1007/s13370-020-00851-9; MR ; Zbl)
(Impact Factor: ; Citações: MSN: , WoS: , zbMATH:)
7. *Modelling silicosis: existence, uniqueness and basic properties of solutions*, *Nonlinear Anal.-Real*, **60** (2021), 103299.
(co-authors: J.T. Pinto, R. Sasportes).
(DOI: 10.1016/j.nonrwa.2021.103299; MR ; Zbl)
(Q1; Impact Factor: ; Citações: MSN: 1, WoS: 2, zbMATH:)
8. *Modelling silicosis: the structure of equilibria*, *Euro. J. Appl. Math.*, **31** (6) (2020), 919–936.
(co-authors: M. Drmota, M. Grinfeld).

- (DOI: 10.1017/S0956792519000329; MR ; Zbl)
(Q3; Impact Factor: ; Citações: MSN: , WoS: 3, zbMATH: 1)
9. *On convergence to critical scaling profiles in submonolayer deposition models*, Kinet. Relat. Mod., **11** (6), 1359–1376 (2018).
(co-authors: J.T. Pinto, R. Sasportes).
(DOI: 10.3934/krm.2018053 ; MR ; Zbl)
(Q1; Impact Factor: 1.380; Citações: MSN: 0, WoS: 0, zbMATH: 0)
 10. *Bifurcation analysis of the twist-Fréedericksz transition in a nematic liquid-crystal cell with pre-twist boundary conditions: the asymmetric case*, Euro. J. Appl. Math., **28** (2), 243–260 (2017).
(co-authors: M.I. Mendéz, J.T. Pinto).
(DOI: 10.1017 /S0956792516000243; MR 3613310 ; Zbl 1386.82073)
(Q3; Impact Factor: 1.000; Citations: MSN: 0, WoS: 4, zbMATH: 1)
 11. *Rates of convergence to scaling profiles in a submonolayer deposition model and the preservation of memory of the initial condition*, SIAM J. Math. Anal., **48** (2), 1109–1127 (2016).
(co-authors: J.T. Pinto, R. Sasportes).
(DOI: 10.1137/15m1035033; MR 3477755; Zbl 1336.34023)
(Q1; Impact Factor: 1.648; Citations: MSN: 2, WoS: 2, zbMATH: 2)
 12. *The Redner–Ben-Avraham–Kahng coagulation system with constant coefficients: the finite dimensional case*, Z. angew. Math. und Phys., **66**, 1375–1385 (2015).
(co-authors: J.T. Pinto, R. Sasportes).
(DOI: 10.1007/s00033-014-0485-7; MR 3377692; Zbl 06478432)
(Q1; Impact Factor: 1.109; Citations: MSN: 1, WoS: 1, zbMATH: 1)
 13. *The Redner–Ben-Avraham–Kahng cluster system*, São Paulo J. Math. Sci., **6** (2), 171-201 (2012).
(co-authors: J.T. Pinto, R. Sasportes).
(URI: <http://hdl.handle.net/10400.2/2620>; MR 3135638; Zbl 1300.34122)
(Citations: MSN: 2, WoS: 2, zbMATH: 2)
 14. *Scaling behaviour in a coagulation-annihilation model and Lotka-Volterra competition systems*, J. Phys. A-Math. Teor., **45**, 285201 (2012).
(co-authors: J.T. Pinto, H. van Roessel, R. Sasportes).
(DOI: 10.1088/1751-8113/45/28/285201; MR 2947250; Zbl 1246.82077)
(Q2; Impact Factor: 1.564; Citations: MSN: 1, WoS: 1, zbMATH: 0)
 15. *Kickback in nematic liquid crystals*, Quart. Appl. Math., **70** (1), 99-110 (2012).
(co-authors: M. Grinfeld, M. Langer, N.J. Mottram, J.T. Pinto).
(DOI: 10.1090/S0033-569X-2011-01265-5; MR 2920618; Zbl 1235.82085)
(Q3; Impact Factor: 0.524; Citations: MSN: 0, WoS: 1, zbMATH: 0)
 16. *A nonautonomous predator-prey system arising from coagulation theory*, Int. J. Biomathematics and Biostatistics, **1** (2), 129-140 (2010).
(co-autor: J.T. Pinto).

- (URI: <http://hdl.handle.net/10400.2/1911>; Zbl 1323.34070)
 (Citations: zbMATH: 0)
17. *Bifurcation analysis of the twist-Fréedericksz transition in a nematic liquid crystal cell with pre-twist boundary conditions*, Euro. J. Appl. Math., **20**, 269-287 (2009).
 (co-authors: E.C. Gartland, Jr., M. Grinfeld, J.T. Pinto).
 (DOI: 10.1017/s0956792509007827 ; MR 2511276; Zbl 1187.82131)
 (Q2; Impact Factor: 1.054; Citations: MSN: 2, WoS: 4, zbMATH: 3)
 18. *Uniqueness in the Freedericksz transition with weak anchoring*, J. Differ. Equ., **246**, 2590-2600 (2009).
 (co-authors: M. Grinfeld, N.J. Mottram, J.T. Pinto).
 (DOI: 10.1016/j.jde.2009.01.033; MR 2503014; Zbl 1176.34025)
 (Q1; Impact Factor: 1.426; Citations: MSN: 6, WoS: 7, zbMATH: 3)
 19. *Dynamics of a nonautonomous ODE system occurring in coagulation theory*, J. Dyn. Differ. Equ., **20**, 55-85 (2008).
 (co-author: R. Sasportes).
 (DOI: 10.1007/s10884-006-9067-5; MR 2385722; Zbl 1170.34036)
 (Q1; Impact Factor: 0.919; Citations: MSN: 2, WoS: 8, zbMATH: 1)
 20. *A mathematical study of a bistable nematic liquid crystal device*, Math. Models Methods Appl. Sci., **17** (12), 2009-2034 (2007).
 (co-authors: M. Grinfeld, N.J. Mottram, J.T. Pinto).
 (DOI: 10.1142/S0218202507002546; MR 2371561; Zbl 1156.35320)
 (Q1; Impact Factor: 1.671; Citations: MSN: 0, WoS: 2, zbMATH: 0)
 21. *Dynamics of a differential system using invariant regions*, L'Enseignement Math., **53**, 3-14 (2007).
 (URI: <http://hdl.handle.net/10400.2/1533>; MR 2343342; Zbl 1151.34039)
 (Citations: MSN: 0, WoS: 2, zbMATH: 0)
 22. *Long-time behaviour and self-similarity in a coagulation equation with input of monomers*, Markov Process. Relat., **12**, 367-398 (2006).
 (co-authors: H.J. van Roessel, J.A.D. Wattis).
 (URI: <http://hdl.handle.net/10400.2/1642>; MR 2249638; Zbl 1136.82347)
 (Citations: MSN: 8, zbMATH: 6)
 23. *A hierarchical cluster system based on Horton-Strahler rules for river networks*, Stud. Appl. Math., **109**, 163-204 (2002).
 (co-authors: M. Grinfeld, J.A.D. Wattis).
 (DOI: 10.1111/1467-9590.00221; MR 1929583; Zbl 1152.82318)
 (Q2; Impact Factor: 0.770; Citations: MSN: 0, WoS: 8, zbMATH: 0)
 24. *Unimodality of steady size distributions of growing cell populations*, J. Evol. Equ., **1**, 405-409 (2001).
 (co-authors: M. Grinfeld, J.B. McLeod).
 (DOI: 10.1007/pl00001379; MR 1877266; Zbl 1022.35078)
 (Citations: MSN: 5, WoS: 9, zbMATH: 5)
 25. *A Finite dimensional dynamical model for gelation in coagulation processes*, J. Nonlinear Sci., **8**, 619-653 (1998).

- [DOI: 10.1007/s003329900061; MR 1650684; Zbl 0915.34037]
 (Impact Factor: 0.897; Citations: MSN: 23, WoS: 30, zbMATH: 15)
26. *Asymptotic behaviour of low density solutions to the Generalized Becker-Döring equations*, Nonlinear Diff. Eq. Appl., **5**, 23-37 (1998).
 [DOI: 10.1007/s000300050031; MR 1600487; Zbl 0892.34073]
 (Citations: MSN: 8, WoS: 15, zbMATH: 5)
27. *On the dynamic scaling behaviour of solutions to the discrete Smoluchowski equations*, Proc. Edinburgh Math. Soc., **39**, 547-559 (1996).
 [MR 1417696; Zbl 0858.34041]
 (Impact Factor: 0.349; Citations: MSN: 12, WoS: 16, zbMATH: 5)
28. *On the positivity of solutions to the Smoluchowski equations*, Mathematika, **42**, 406-412 (1995).
 [MR 1376737; Zbl 0836.34008]
 (Impact Factor: 0.386; Citations: MSN: 2, WoS: 6, zbMATH: 0)
29. *Existence and uniqueness of density conserving solutions to the coagulation-fragmentation equations with strong fragmentation*, J. of Math. Analysis and Appl., **192**, 892-914 (1995).
 [MR 1336484; Zbl 0839.34015]
 (Impact Factor: 0.271; Citations: MSN: 46, WoS: 58, zbMATH: 29)
30. *Asymptotic behaviour of solutions to the coagulation-fragmentation equations. II. Weak fragmentation*, J. Statist. Phys., **77**, 89-123 (1994).
 (co-autor: J. Carr).
 (DOI: 10.1007/bf02186834; MR 1300530; Zbl 0838.60089)
 (Impact Factor: 1.524; Citations: MSN: 31, WoS: 49, zbMATH: 27)
31. *Instantaneous gelation in coagulation dynamics*, Z. angew. Math. und Phys., **43**, 974-983 (1992).
 (co-autor: J. Carr).
 (DOI: 10.1007/bf00916423 ; MR 1198671; Zbl 0761.76011)
 (Impact Factor: 0.311; Citations: MSN: 17, WoS: 36, zbMATH: 13)

5.1.2 In Physical Chemistry

1. *Mathematical Investigations of a Kinetic Model for Glycerol Hydrogenolysis Via Heterogeneous Catalysis*, MATCH Commun. Math. Comput. Chem. **88** (2), 437-460 (2022).
 (co-autores: T.Q. Ndlovu, M.L. Shoji).
 (Impact Factor: - ; Citations: WoS: -)
2. *Kinetics and thermodynamics of poly(9,9-dioctylfluorene) β -phase formation in dilute solution*, Macromolecules, **39**, 5854-5864 (2006).
 (co-authors: H.D. Burrows, F.B. Dias, A.L. Maçanita, A.P. Monkman, J. Morgado).
 (DOI: 10.1021/ma0602932)
 (Impact Factor: 4.277; Citations: WoS: 120)
3. *The 9-antroate chromophore as a fluorescence probe for water*, J. of Phys. Chem., **93**, 336-343 (1989).

(co-authors: S. Costa, A.L. Maçanita, E. Melo, H. Santos).
(DOI: 10.1021/j100338a066)
(Citations: WoS: 70)

5.2 Articles in Book Chapters

5.2.1 In Mathematics

1. *Mathematical aspects of coagulation-fragmentation equations*, in: J.P. Bourguignon, R. Jeltsch, A. Pinto, M. Viana (Eds.): *Mathematics of Energy and Climate Change*; CIM Series in Mathematical Sciences, vol. 2, Springer, Cham, 2015. ISBN 978-3-319-16120-4. Chap. 5, pp. 83-162. (DOI: 10.1007/978-3-319-16121-1_5; MR 3644260)
(Citations: MSN: 11, WoS: 18, zbMATH: -)

5.3 Articles in Conference Proceedings

5.3.1 In Mathematics

1. *Self-similar behaviour in an addition model with input of monomers*, in: Theodore E. Simos, George Psihoyios, Ch. Tsitouras (Eds): *Numerical Analysis and Applied Mathematics: International Conference on Numerical Analysis and Applied Mathematics*; AIP Conference Proceedings vol. 1048, American Institute of Physics, Melville, 2008 (pp. 935-938). [Zbl 1167.82381]
(co-authors: J.T. Pinto, R. Sasportes).
(Citations: WoS: 0, zbMATH: 0)
2. *Convergence to self-similarity in addition models with input of monomers*, *Oberwolfach Reports*, 4 (Issue 4), 2754-2756 (2007). (Citações: WoS: 1)
3. *Convergence to self-similarity in an addition model with power-like time-dependent input of monomers*, in: Vincenzo Cutello, Giorgio Fotia, Luigia Puccio (Eds): *Applied and Industrial Mathematics in Italy II, Selected Contributions from the 8th SIMAI Conference*; Series on Advances in Mathematics for Applied Sciences, vol. 75, World Scientific, Singapore, 2007 (pp. 303-314). (DOI: 10.1142/9789812709394_0027 ; MR 2367580)
(co-authors: J.T. Pinto, R. Sasportes).
(Citations: MSN: 2, WoS: 3)
4. *Convergence to equilibria of solutions to the coagulation-fragmentation equations*, in: Ta-tsien Li, Long-wei Lin, José Francisco Rodrigues (Eds): *Nonlinear Evolution Equations and Their Applications*, World Scientific, Singapore, 1999 (pp. 45-56).; MR 1734570; Zbl 0970.34052
(Citations: MSN: 4, WoS: 4, zbMATH: 1)

5.3.2 In Physical Chemistry

1. *The 9-antroate chromophore as a fluorescence probe for water*, XI IUPAC Symposium on Photochemistry, Abstracts, 488, Lisboa 1986.
(co-authors: S. Costa, A.L. Maçanita, E. Melo, M. Prieto).

2. *Dependência do tempo de vida da fluorescência do 9-antroato de metilo na presença de água*, 7º Encontro Anual SPQ, PA21, Lisboa, 1984. (co-authors: S. Costa, A.L. Maçanita, E. Melo, J. Fareleira).

5.3.3 In Teaching

1. *Interchanging knowledge and experiments in a learner community in a view of cooperative work*, EADTU's 20th Anniversary Conference 2007, Lisboa, november 2007. On-line proceedings in:
<http://www.eadtu.nl/conference-2007/files/EADTUconference2007proceedings.pdf>
 (co-authors: F. Amador, F. Caetano, J. Coelho, C. Dias Gaspar, J. Remédios, C.T. Ribeiro, V. Rocio, J. Valadares)

5.4 Advanced Texts/Theses

1. *Alguns aspectos da análise matemática de equações de coagulação-fragmentação*, Universidade Aberta, Lisboa, 2009 (review lesson for the *Agregação* examination, in portuguese)
<http://hdl.handle.net/10400.2/1440>.
2. *Studies in discrete coagulation-fragmentation equations*, Heriot-Watt University, Edinburgh, 1993 (PhD thesis).
3. *Padrões estacionários em sistemas de reacção-difusão. Estudo de um sistema do tipo predador-presa*, IST, Lisboa, 1989 (MSc dissertation, in portuguese).

6 Scientific Communications

6.1 Oral Communications in Mathematics

1. *A coagulation type mathematical model of silicosis*.
 Talk presented at the *International Conference on Computational and Applied Mathematics on the Occasion of Professor T. Zhanlav's 80th Birthday* in the Institute of Mathematics and Digital Technology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia (online), September 2023. (Invited keynote talk)
2. *A coagulation type toy model for silicosis*.
 Talk presented at the 8th *IST-IME Meeting*, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, September 2022. (Invited talk)
3. *A coagulation type model for silicosis*.
 Talk presented at the *Séminaire d'analyse appliquée A³* of the Laboratoire Amiénois de Mathématique Fondamentale et Appliquée, Université de Picardie Jules Verne, Amiens, France, May 2022. (Invited talk)
4. *A coagulation-fragmentation-death model for silicosis*.
 Talk presented at the special section on *Deterministic and stochastic coagulation-fragmentation models* of the *Encontro Nacional da Sociedade Portuguesa de Matemática*, (online) July 2021. (Invited talk)

5. *A coagulation-fragmentation-death model for silicosis.*
Talk presented at the minisymposium on *Coagulation-fragmentation: modelling & mathematical theory* of the *SIAM Conference on Mathematical Aspects of Materials Science*, Basque Center for Applied Mathematics, Bilbao, Spain, (online) March 2021. (Invited talk)
6. *Rates of convergence to similarity profiles in a deposition model.*
Talk presented at the Indian Institute of Technology Roorkee, Roorkee, India, January 2019. (Invited talk)
7. *Bifurcations in liquid crystals cells.*
Talk presented at the Indian Institute of Technology Roorkee, Roorkee, India, January 2019. (Invited talk)
8. *Bifurcations in liquid crystals cells.*
Talk presented at the meeting *Encontro Ciência 2018*, Centro de Congressos de Lisboa , Lisboa, July 2018. (Invited talk)
9. *Sub-monolayer deposition models: similarity profiles and convergence rates.*
Talk presented at the meeting *Nonlinear analysis and the physical and biological sciences (in honour of Jack Carr)*, International Centre for Mathematical Sciences, Edinburgh, United Kingdom, May 2018. (Invited talk)
10. *Similarity behaviour in a system of differential equations modelling sub-monolayer deposition.*
Talk presented at the Pure and Applied Mathematics Colloquium, Open University, Milton Keynes, United Kingdom, May 2018. (Invited talk)
11. *Bifurcation problems in liquid crystal cells.*
Talk presented at the Analysis Seminar, *Maxwell Institute for Mathematical Sciences*, Heriot-Watt University, Edinburgh, United Kingdom, May 2018. (Invited talk)
12. *Playing with pendula.*
Talk presented at the Department Colloquia, Department of Mathematics and Statistics, University of Strathclyde , Glasgow, United Kingdom, April 2018. (Invited talk)
13. *Some ordinary differential equation problems in liquid crystal cells.*
Two talks presented at the mini-workshop with the same name organized at the National University of Laos, Vientiane, Laos, February 2018. (Invited talk)
14. *Coagulation-fragmentation equations: a brief overview.*
Talk presented at the *Erasme Meeting*, Université de Picardie Jules Verne, Amiens, France, November 2017. (Invited talk)
15. *Sub-monolayer deposition models: similarity profiles and convergence rates.*
Talk presented at the *CAMGSD–CMAFCIO Differential Equations Meeting*, Faculdade de Ciências, Universidade de Lisboa, Lisboa, September 2017. (Invited talk)

16. *Sub-monolayer deposition models: similarity profiles and convergence rates.*
Talk presented at the *Stochastic and Deterministic Mathematical Methods for Biological and Environmental Systems: Theory & Applications*, Universidade da Madeira, Funchal, September 2017. (Invited talk)
17. *Some bifurcation problems in mathematical models of liquid crystals cells.*
2017 International Science and Technology Cooperation Lecture, National Research Base of Intelligent Manufacturing Service, Chongqing Technology and Business University, Chongqing, China, April 2017. (Invited talk)
18. *Bifurcations in twist-Freedericksz transitions in a nematic liquid-crystal cell with non-homogeneous Dirichlet conditions.*
Talk presented at the *Contributed Session CS-07-C: Dynamical Systems and Ordinary Differential Equations*, of the *7th European Congress of Mathematics*, Technische Universität Berlin, Berlin, Germany, July 2016.
19. *Mathematical aspects of “cluster eating” equations.*
Talk presented at the *5th IST-IME Meeting; in honor of professor Orlando Lopes*, Instituto de Matemática e Estatística, Universidade de São Paulo, São Paulo SP, Brazil, July–August 2014. (Invited talk)
20. *Some mathematical aspects of ‘cluster eating’ equations.*
Talk presented at the *Special Session on Functional Analytic Techniques for Evolutionary Equations Arising in the Natural Sciences in the AIMS’ Tenth International Conference on Dynamical Systems, Differential Equations and Applications*, Instituto de Ciencias Matemáticas, Madrid, Spain, July 2014. (Invited talk)
21. *On a model of cluster annihilation.*
Talk presented at the workshop *Some Prospective Aspects in Mathematics and Statistics*, Universidade de Évora, Évora, December 2013. (Invited talk)
22. *On a model of cluster annihilation.*
Talk presented at the meeting *Particle Systems and PDEs II*, Universidade do Minho, Braga, December 2013. (Invited talk)
23. *Coagulation and clustering dynamics* Talk presented at the meeting *Robotics and Systems in Engineering and Science LARSyS 2013*, Pavilhão do Conhecimento, Lisboa, July 2013. (Invited talk)
24. *Self-similarity in Smoluchowsk’s coagulation equations: some results and open problems.* Talk presented at the *Seminario del Departamento de Matemáticas Fundamentales*, Universidad Nacional de Educación a Distancia, Madrid, Spain, April 2013. (Invited talk)
25. *Smoluchowski’s coagulation system and related models.* Talk presented at the thematic session *Non-equilibrium Statistical Mechanics: Kinetics, Chemistry and Coagulation*, of the *International Conference on the Mathematics of Energy and Climate Change*, Centro Internacional de Matemática, Fundação Calouste Gulbenkian, Lisboa, March 2013. (Invited talk)

26. *Self-similar behaviour in coagulation equations: some results and open problems.* Talk presented at the Dynamical Systems Seminar of the Centro de Matemática da Universidade do Porto, Universidade do Porto, October 2012. (Invited talk)
27. *On self-similarity in coagulation-annihilation systems.*
Talk presented at the Minisymposium on Dynamics of Coagulation-Fragmentation Processes of the SIAM Conference on Nonlinear Waves and Coherent Structures, Seattle WA, United States, July 2012. (Invited talk)
28. *A nonautonomous predator-prey system arising from coagulation theory: is it of any use in biomathematics?*
Talk presented at the Pacific Institute for the Mathematical Sciences—Applied Mathematics Institute Seminar, Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Canada, June 2012. (Invited talk)
29. *A nonautonomous predator-prey system arising from coagulation theory.*
Talk presented at the Minisymposium on Kinetic Equations of the EQUAD-IFF 2011, Loughborough, United Kingdom, August 2011. (Invited talk)
30. *A nonautonomous predator-prey system arising from coagulation theory.*
Talk presented at the Applied Analysis Seminar, Department of Mathematics and Statistics, University of Strathclyde, Glasgow, United Kingdom, April 2011. (Invited talk)
31. *Freedericksz transitions in liquid crystals and bifurcations in pendulum equations.*
Talk presented at the Encuentro UAb-UNED-UOC de Matemáticas, Universidad Nacional de Educación a Distancia, Madrid, Spain, April 2010.
32. *Uniqueness of the bifurcating branch in the Freedericksz transition in a liquid crystal cell with weak anchoring.*
Talk presented at the *Seminário de Análise e Equações Diferenciais do Centro de Matemática e Aplicações Fundamentais*, Universidade de Lisboa, February 2010. (Invited talk)
33. *Bifurcation analysis of a liquid crystal cell*
Talk presented at the Summer Meeting on Differential Equations; Celebrating the 70th birthday of Plácido Zoega Táboas, Instituto de Ciências Matemáticas e de Computação, Universidade de São Paulo, São Carlos SP, Brazil, February 2010. (Invited talk)
34. *Um problema de bifurcações num dispositivo de cristais líquidos*
Talk presented at the *Seminário Matemática na AbERTA*, Universidade Aberta, November 2009.
35. *Transições de Fréedericksz em cristais líquidos e bifurcações na equação do pêndulo*
Talk presented at the *Seminário do Centro de Investigação em Matemática e Aplicações*, Universidade de Évora, December 2008. (Invited talk)

36. *Self-similarity in coagulation equations*
Talk presented at the Workshop About Climate Modelling, Faculdade de Ciências, Universidade de Lisboa, September 2008. (Invited talk)
37. *Self-similarity behaviour in coagulation equations*
Talk presented at the *Summer Meeting on Differential Equations; Celebrating the 80th birthday of Jack K. Hale*, Instituto de Ciências Matemáticas e de Computação, Universidade de São Paulo, São Carlos SP, Brasil, January–February 2008. (Invited talk)
38. *Convergence to self-similarity in addition models with input of monomers*
Talk presented at the Workshop *Coagulation and Fragmentation Models*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, September 2007. (Invited talk)
39. *Existence and non-existence of self-similar behaviour in a coagulation system.*
Talk presented at the Workshop *Interaction in Physics, Computing and Mathematics* part of the MIR@W Days, Mathematics Institute, University of Warwick, Coventry, United Kingdom, February 2007. (Invited talk)
40. *Convergence to self-similarity in a non-autonomous coagulation model.*
Talk presented at the Applied Mathematics Seminar, Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Canada, December 2006. (Invited talk)
41. *Dynamics of a nonautonomous ODE system occurring in coagulation theory.*
Talk presented at the *Seminário de Análise do Centro de Matemática e Aplicações Fundamentais*, Universidade de Lisboa, November 2006. (Invited talk)
42. *Dynamics of a nonautonomous ODE system occurring in coagulation theory.*
Talk presented at the AIMS Sixth International Conference on Dynamical Systems, Differential Equations and Applications, Université de Poitiers, Poitiers, France, July 2006. (Invited talk)
43. *Convergence to self-similarity in a coagulation system with time-dependent input of monomers.*
Talk presented at the *VIII Congresso della Società Italiana di Matematica Applicata e Industriale*, Ragusa, Italy, May 2006.
44. *Convergence to self-similar behaviour in a Becker–Döring model with input of monomers.*
Talk presented at the workshop *Systèmes Aléatoires Inhomogènes: Modèles déterministes et stochastiques pour la coagulation et la fragmentation*, Institut Henri Poincaré, Paris, France, January 2005. (Invited talk)
45. *Centre manifolds and self-similarity in a coagulation model.*
Talk presented at the Dynamical Systems Seminar, School of Mathematical Sciences, University of Nottingham, Nottingham, United Kingdom, February 2004. (Invited talk)

46. *Invariant regions and self-similarity in a coagulation model.*
Talk presented at the *Seminário do Centro de Análise, Geometria e Sistemas Dinâmicos do Departamento de Matemática do IST*, Lisboa, December 2003.
47. *The kinetics of cluster growth.*
Talk presented at the *Seminário de Equações Diferenciais Parciais do Departamento de Matemática do IST*, Lisboa, May 2003.
48. *A hierarchical cluster system based on Horton-Strahler rules for river networks.*
Talk presented at the Division of Theoretical Mechanics, School of Mathematical Sciences, University of Nottingham, Nottingham, United Kingdom, May 2002. (Invited talk)
49. *Um sistema de coagulação baseado nas regras de Horton-Strahler de redes fluviais.*
Talk presented at the *Encontro Nacional da Sociedade Portuguesa de Matemática*, Universidade de Coimbra, Coimbra, February 2002. (Invited talk)
50. *A hierarchical cluster system based on Strahler's rules for river networks.*
Talk presented at the 'Mini-Workshop' *Stochastic Models for Coagulation Processes*, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany, August 2001. (Invited talk)
51. *Convergence to equilibria of solutions to the coagulation-fragmentation equations.*
Talk presented at the *Luso-Chinese Symposium on Nonlinear Evolution Equations and Their Applications*, Universidade de Macau, Macau, October 1998.
52. *Transições de fase nas equações de coagulação de Smoluchowski.*
Talk presented at the *Encontro da Sociedade Portuguesa de Matemática*, Universidade do Minho, Braga, February 1998. (Invited talk)
53. *Uma equação diferencial ordinária com uma dinâmica curiosa.*
Talk presented at the *Seminário de Análise, Geometria e Sistemas Dinâmicos do Departamento de Matemática do IST*, Lisboa, November 1997.
54. *Transições de fase em sistemas de partículas em interação.*
Talk presented at the *Encontro de Sistemas Dinâmicos*, Centro Internacional de Matemática, Coimbra, September 1996. (Invited talk)
55. *Dynamic scaling in discrete Smoluchowski equations.*
Talk presented at the conference *EQUADIFF 95*, Lisboa, July 1995.
56. *Convergence to equilibria in coagulation-fragmentation equations.*
Talk presented at the workshop *Dynamics of Microstructures: Analysis and Efficient Simulation*, Garbsen, Hannover, Germany, July 1995. (Invited talk)

57. *Transições de fase em problemas de coagulação-fragmentação.*
Talk presented at the *Seminário de Sistemas Dinâmicos e Mecânica dos Meios Contínuos do Departamento de Matemática do IST*, Lisboa, December 1993.
58. *A finite-dimensional model for gelation and coarsening problems.*
Talk presented at the meeting *Spatio-Temporal Evolution of Patterns in Nonlinear Mechanics*, de Bilt, Utrecht, The Netherlands, May 1993.
59. *A finite-dimensional model for gelation in coagulation problems.*
Talk presented at the “PhD Seminars” of the Department of Mathematics, Heriot-Watt University, Edinburgh, United Kingdom, January 1993.
60. *Existence of self-similar solutions to coagulation dynamics: some open problems*
Talk presented at the meeting *Spatio-Temporal Evolution of Patterns in Nonlinear Mechanics*, Nice, France, November 1991.
61. *Padrões estacionários em sistemas de reação-difusão.*
Serie of three talks presented at the *Seminário de Sistemas Dinâmicos e Mecânica dos Meios Contínuos do Departamento de Matemática do IST*, Lisboa, July 1988.

6.2 Poster Communications

6.2.1 In Mathematics

1. *Análise harmónica e aplicação das onduletas à modelação de séries temporais,*
Poster presented at the *1^a Jornadas de Estatística e Computação da Universidade Aberta*, Escola de Hotelaria e Turismo do Oeste, Caldas da Rainha, May 2013.
(co-authors: D. Candeias, R. Ramos , R. Sasportes)
2. *Uniqueness in the Freedericksz transitions with weak anchoring,*
Poster presented at the *Liquid Crystals Theory and Modelling: Discussion Meeting*, Mathematical Institute, University of Oxford, Oxford, United Kingdom, October 2009.

6.2.2 In Physical Chemistry

1. *The 9-antroate chromophore as a fluorescence probe for water,*
Poster presented at the *XI IUPAC Symposium on Photochemistry*, Lisboa, 1986.
2. *Dependência do tempo de vida da fluorescência do 9-antroato de metilo na presença de água,*
Poster presented at the 7^o Encontro Anual SPQ, Lisboa, 1984.

7 Communications About Teaching

7.1 Oral Communications

1. *Mathematics and Online Education*
Talk presented at the *Benicàssim Tech 2023 Artificial Intelligence & e-Math Workshop*, Benicàssim, September 2023.
2. *Avaliação em tempos de Covid: A avaliação nos 1^o ciclos da UAb*
Talk jointly presented by Maria do Rosário Ramos at the *12th International Workshop on Mathematical E-Learning (eMath 2020)*, Universitat Oberta de Catalunya (online), november 2020.
3. *Online learning of mathematics: the case of Universidade Aberta of Portugal.*
Talk presented at the Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, april 2017.
4. *“Metas Curriculares de Matemática” at UAb: An online crash training course for school teachers, contracted by the portuguese Ministry of Science and Technology.*
Talk presented at the *6th International Workshop on Mathematical E-Learning (eMath 2014)*, Universitat Oberta de Catalunya, Barcelona, april 2014.
5. *Avaliação em ensino on-line: algumas práticas na UAb.*
Talk presented at the *Seminários do Centro de Investigação em Matemática e Aplicações*, Departamento de Matemática, Universidade de Évora, Évora, May 2013.
6. *Produção de pequenos vídeos para o ensino de Álgebra Linear na UAb.*
Talk presented at the *5th International Workshop on Mathematical E-Learning (e-math 2013)*, Universidad Nacional de Educación a Distancia, Madrid, April 2013.
7. *“Análise Matemática em Movimento”:* uma ação de Aprendizagem ao Longo da Vida para professores do Ensino Básico e Secundário. Talk presented at the *Seminários e-DCeT*, Departamento de Ciências e Tecnologia, Universidade Aberta, Porto Salvo, July 2012.
8. *“Mathematical Analysis in Motion”:* a Lifelong Learning E-course for High School Teachers. Talk presented at the *4th International Workshop on Mathematical E-Learning (E-MATH 2012)*, Universidade Aberta, Lisboa, June 2012.
9. *Ensino de Análise Matemática online: a experiência de Elementos de Análise Infinitesimal I em 2008/2009.*
Talk presented at the *Elearning UAb 2010, LEaD Workshop: práticas de elearning*, Universidade Aberta, Lisboa, June 2010.
10. *Materiais interactivos no ensino da matemática.*
Talk presented at the *Seminários e-DCeT*, Departamento de Ciências Exactas e Tecnológicas, Universidade Aberta, Lisboa, June 2007.

7.2 Poster Communications

1. *New Challenges for e-Learning: Pos-Graduation in Exact and Technological Sciences*. Poster presented at the *EDEN 2008*, Lisboa, June 2008. (co-authors: J. Araújo, U.M. Azeiteiro, P. Bacelar-Nicolau, S. Caeiro, A.P. Martinho, A.P. Moura, M.R. Ramos, V. Rocio)

7.3 Debate Panels

1. Moderator of the round table with Hung-Hsi Wu (Univ. California, Berkeley) and António Bívar (Univ. Lisboa) organized within the *Escola de Verão da Sociedade Portuguesa de Matemática*, Lisboa, July 2019.
2. *Flexibilidade Curricular no Ensino Secundário – Cursos Científico-Humanísticos*. Discussion organized within the *1^o Congresso das Escolas: a Pedagogia das Escolas, Fundação Calouste Gulbenkian*, Lisboa, November 2017.
3. *Debate Sobre o Ensino da Matemática em Portugal*. Debate panel organized by the *Núcleo de Estudantes de Matemática da Universidade do Minho*, Braga, May 2016.
4. *Encontro Sobre o Ensino da Matemática*. Debate panel organized by the departments of Mathematics and of Pedagogy and Education of *Universidade de Évora*, Évora, May 2014.
5. *Impacto das Alterações Curriculares na Matemática do Ensino Básico no Futuro Próximo*. Debate panel organized by the *Núcleo Regional de Évora da Associação de Professores de Matemática* as part of the *ÉvoraMat 2013–XX Encontro Regional de Professores de Matemática*, Escola Secundária Conde de Monsaraz, Reguengos de Monsaraz, October 2013.
6. *Ensino da Matemática nos Cursos de Engenharia, Economia e Ciências Naturais*. Debate panel at the *1st Portuguese Meeting in Mathematics for Industry*, Departamento de Matemática, Universidade do Porto, June 2013.
7. *Proposta de Programa e Metas Curriculares de Matemática do Ensino Básico*. Debate panel organized by the *Núcleo Regional de Évora da Associação de Professores de Matemática*, Escola Secundária Gabriel Pereira, Évora, May 2013.

8 Research Projects

8.1 Principal Researcher

1. Project CRUP–Acções Integradas Luso-Britânicas, Acção B14/02, with the title *Analysis of Cluster Formation Equations in Physical and Environmental Sciences* (2002) (Funding: 1.4 k€).

2. Project PBIC/C/MAT/2139/95 of the *Junta Nacional de Investigação Científica e Tecnológica*, with the title *Transições de Fase e Equações Diferenciais Parciais* (1996-98) (Funding: 30.2 k€)
3. Project JNICT/DAAD, Program INIDA, with the title *Dinâmica de Transições de Fase em Sistemas de Partículas em Interação* (1996) (Funding: 2.3 k€).

8.2 Team Member

1. Project PICS 2018 CNRS-FCT/8262 with the title *Diffusive-Dispersive Limit of Hyperbolic Conservation Laws* (principal researchers: Joaquim Correia, U. Évora, and Youcef Mammeri, U. Picardie, Amiens, France) (2019-2021) (Funding: 5.4 k€).
2. Project PDCT/MAT/56476/2004 of the *Fundação para a Ciência e a Tecnologia*, with the title *Geometric Properties of Invariant Sets* (principal researcher: Carlos Rocha, IST) (2006-09) (Funding: 20 k€).
3. Project POCTI/MAT/199/94-20199 of the *Fundação para a Ciência e a Tecnologia*, with the title *Análise Não-Linear e Sistemas Dinâmicos* (principal researcher: Carlos Rocha, IST) (2002-08) (Funding: 107.4 k€).
4. Project POCTI/32931/MAT/2000 of the *Fundação para a Ciência e a Tecnologia*, with the title *Qualitative Theory of Differential Equations* (principal researcher: Pedro Freitas, IST) (2000-03) (Funding: 49.9 k€).
5. Project STRDA/C/CEN/528/92 of the *Junta Nacional de Investigação Científica e Tecnológica*, with the title *Métodos de Análise Não-Linear* (principal researcher: Carlos Rocha, IST) (1993-96) (Funding: 31.9 k€).

9 Scholarships and Studentships

1. Scholarship of the *International Science Programme*, Uppsala Universitet, Uppsala, Sweden, in the National University of Laos, Vientiane, Laos, in January and February 2019.
2. Award of the *Sir David Anderson Research Professorship* by the Faculties of Science and of Engineering of the University of Strathclyde, Glasgow, UK, for a research visit in April and May 2018.
3. Scholarship EMMA ID 2601 of the programme *Erasmus Mundus Mobility with Asia EMMA14*, in the National University of Laos, Vientiane, Laos, from December 2016 to July 2017.
4. Scholarship of the *Fundação Calouste Gulbenkian* at the Heriot-Watt University, Edinburgh, United Kingdom, from April to June 2001, and at the University of Nottingham, Nottingham, United Kingdom, in June 2001.
5. Studentship of the *Fundação Calouste Gulbenkian* at the Heriot-Watt University, Edinburgh, United Kingdom, from October 1990 until July 1993.

6. Traineeship of the *IAESTE* at the *Union Carbide Ibérica SA* in Gijón, Spain, in September and October 1984.
7. Studenship of the *PARTEX* at the *Grupo de Estudos de Catálise*, IST, Lisboa, from March 1982 until June 1983.

10 Research Supervision

10.1 PhD Supervision

1. Priscila Costa Diniz, *Mathematical analysis of left-right symmetry-breaking in chiral polymerisation* (provisional title), PhD in Applied Mathematics and Modelling, Universidade Aberta, 2021 – present. (co-supervision: J.A.D. Wattis (Univ. Nottingham))
2. Khankham Vongsavang, *Conservation laws arising in coagulation-fragmentation models* (provisional title), PhD in Mathematics, Universidade de Évora, 2020 – present. (co-supervision: J. Correia (Univ. Évora))
3. Rafael Silva Sasportes, *Dynamical problems in coagulation equations*, PhD in Mathematics, Universidade Aberta, Lisboa, 2005 – 2008.

10.2 MSc Supervision

1. Ricardo Jorge Rodrigues André, *Movimento de partículas auto-propulsio-nadas. Modelo de Cucker-Smale e variantes: análise e simulações*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Lisboa, 2024.
2. William Simfukwe, *Quantum computing and differential equations*, AIMS South Africa Structured Masters, African Institute for Mathematical Sciences, Muizenberg, Cape Town, South Africa, 2021. (co-supervision: Rafael Nepomechie (Univ. Miami at Coral Glabes))
3. Abigail Jelimo Buttia, *A topological method in ordinary differential equations: Wazewski's principle and some applications*, AIMS South Africa Structured Masters, African Institute for Mathematical Sciences, Muizenberg, Cape Town, South Africa, 2021.
4. Mara Filipa Teodoro Jacinto, *Equações da mecânica celeste: alguns aspetos de integração numérica*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Lisboa, 2020. (co-supervision: Pedro Serranho (UAb))
5. Ammalin Lorvanhxay, *Time maps in the study of some boundary value problems for ordinary differential equations*, MSc in Applied Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos, 2019. (co-supervision: Phoui Souksomvong (NUOL))
6. Thandokuhle Quinton Ndlovu, *Mathematical investigations of a kinetic model for heterogeneous catalysis of glycerol hydrogenolysis*, AIMS South Africa Structured Masters, African Institute for Mathematical Sciences,

- Muizenberg, Cape Town, South Africa, 2019. (co-supervision: Mzamo L. Shozi (Univ. KwaZulu-Natal))
7. Kedtysack Xayxanadasy, *Some ordinary differential equation problems in liquid crystal cells*, MSc in Applied Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos, 2017. (co-supervision: Michael Grinfeld (Univ. Strathclyde), Sackmone Sirisak (NUOL))
 8. Khankham Vongsavang, *Burger's equation and some applications*, MSc in Applied Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos, 2017. (co-supervision: Joaquim Correia (Univ. Évora), Sackmone Sirisak (NUOL))
 9. Manuel Verdes Piñeiro, *Síntesis de dinámica de poblaciones, con aplicación a sistemas de pesca/capturas*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, 2015.
 10. Denise Cordeiro Calvão Candeias, *Análise harmónica e aplicação das onduletas à modelação de séries temporais*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Lisboa, 2014. (co-supervision: Maria do Rosário Ramos (UAb))
 11. Maria Isabel Méndez Aller, *Problemas de bifurcaciones en modelos de cristales líquidos*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, 2014.
 12. Alfredo Cano Cancela, *Sistemas de Lotka-Volterra en dinámica poblacional*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, 2011.

11 Participation in Juries

(Excluding *ex-officio* chairmanship of juries, and chairmanship outside my scientific field)

11.1 Juries of Academic Degrees

11.1.1 *Agregação* Juries

1. Catarina Sofia da Costa Nunes Duarte, *Agregação* in Mathematics, Universidade Aberta, April 2023 (arguing the CV).
2. Paula Maria Machado Cruz Catarino, *Agregação* in Didactics of Sciences and Technology / Didactics of Mathematical Sciences, Universidade de Trás-os-Montes e Alto Douro, December 2020 (arguing the CV).
3. Maria João Chaves Marques da Cunha Oliveira, *Agregação* in Mathematics, Universidade Aberta, April 2020 (arguing the CV).
4. Teresa Paula Costa Azinheira Oliveira, *Agregação* in Mathematics, Universidade Aberta, November 2019 (arguing the CV).

11.1.2 PhD Juries

1. Bruno Miguel Almeida Martins Pereira *Analysis and simulation of stability and wave trapping conditions in stratified fluids*, PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa, October 2014 (arguing member of the jury).
2. Juliana Fernandes da Silva Pimentel, *Asymptotic behavior of slowly non-dissipative systems*, PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa, May 2014 (member of the jury).
3. Cristina Paula da Silva Dias, *Modelos e famílias de modelos para matrizes estocásticas simétricas*, PhD in Mathematics, Universidade de Évora, May 2013 (member of the jury).
4. Rafael Silva Sasportes, *Dynamical problems in coagulation equations*, PhD in Mathematics, Universidade Aberta, April 2008 (supervisor).
5. Amílcar Manuel do Rosário Oliveira, *Estabilidade em análise conjunta de regressões e condução dinâmica de planos de melhoramento*, PhD in Mathematics, Universidade Aberta, March 2008 (member of the jury).
6. Vitor Diogo da Costa Saraiva, *Densidades médias, partições de Markov e rigidez multifractal*, PhD in Mathematics, Instituto Superior Técnico, Universidade Técnica de Lisboa, May 2007 (member of the jury).

11.1.3 MSc Juries

1. Manuel Verdes Piñeiro, *Síntesis de dinámica de poblaciones, con aplicación a sistemas de pesca/capturas*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, October 2015. (supervisor).
2. Denise Cordeiro Calvão Candeias, *Análise harmónica e aplicação das onduletas à modelação de séries temporais*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Lisboa, Portugal, October 2014. (supervisor).
3. María Isabel Méndez Aller, *Problemas de bifurcaciones en modelos de cristales líquidos*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, July 2014 (supervisor).
4. Marlon de Matos de Oliveira, *Método implícito para filtragem de ruído em imagem médica por difusão complexa*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Portugal, March 2014 (president of the jury).
5. Andreia Alves Forte de Oliveira Monteiro, *O planeamento de experiências no aperfeiçoamento de metaheurísticas*, Mestrado em Estatística, Matemática e Computação, Universidade Aberta, Portugal, December 2013 (president of the jury).

6. Alfredo Cano Cancela, *Sistemas de Lotka-Volterra en dinámica de la población*, Máster Universitario en Matemáticas Avanzadas, Universidad Nacional de Educación a Distancia, Madrid, Spain, June 2011 (supervisor).
7. Patrícia Ângelo Batista, *Estabilidade de sistemas de tipo Lotka-Volterra com atrasos*, Mestrado em Matemática (Análise Matemática), Universidade de Lisboa, Portugal, December 2008 (main examiner).
8. Mário Marcelo Figueiredo da Silva Nogueira, *Grafismo funcional técnico e didático, princípios e recomendações*, Mestrado em Expressão Gráfica, Cor e Imagem, Universidade Aberta, Portugal, February 2008 (president of the jury).
9. Pedro Miguel Lola Simões, *Existência de minimizantes para integrais não-convexas do cálculo das variações*, Mestrado em Matemática Aplicada, Universidade de Évora, Portugal, September 2007 (main examiner).
10. Maria da Conceição de Almeida Leite, *Bifurcações de um sistema químico com controlador*, Mestrado em Matemática Aplicada, Universidade do Porto, Portugal, December 2001 (main examiner).

11.1.4 Público Examination of Pedagogical and Technical-Scientific Skills

1. Public examination jury of Jorge Lourenço, Instituto Superior de Contabilidade e Administração de Lisboa, Instituto Politécnico de Lisboa, Portugal, May 2013 (main examiner of the lecture).
2. Public examination jury of José Maria Estrela Graça Salazar, Instituto Superior de Contabilidade e Administração de Lisboa, Instituto Politécnico de Lisboa, Portugal, May 2013 (main examiner of the curriculum vitæ).

11.2 Selection Juries

1. Jury for a position of *Professor Catedrático* in the scientific area of Mathematics, Universidade Aberta, Lisboa, 2023-2024 (member of the jury).
2. Jury for a position of *Professor Associado* in the scientific area of Mathematics, sub-area of Statistics, Universidade Aberta, Lisboa, 2023 (member of the jury).
3. Jury for a position of *Professor Associado* in the scientific area of Mathematics, sub-area of Mathematical Analysis and Numerical Analysis, Universidade Aberta, Lisboa, 2023 (member of the jury).
4. Jury for a position of *Professor Auxiliar* in the scientific area of Mathematics, sub-area of Mathematical Analysis and Numerical Analysis, Universidade Aberta, Lisboa, 2022 (member and president of the jury).
5. Jury for a position of *Professor Auxiliar* in the scientific area of Mathematics, sub-area of Statistics, Universidade Aberta, Lisboa, 2022 (member and president of the jury).

6. Jury for a position of *Professor Auxiliar* in the scientific areas of Real and Functional Analysis, or Differential Equations and Dynamical Systems, Instituto Superior Técnico, Universidade de Lisboa, Lisboa, 2021 (member of the jury).
7. Jury for a position of *Professor Associado* in the scientific area of Mathematics, sub-areas of Mathematical Analysis and Numerical Analysis, or Statistics, Universidade Aberta, Lisboa, 2019–2020 (member and president of the jury).
8. Jury for a position of *Professor Auxiliar* in the scientific area of Mathematics, sub-area of Algebra and Logic, Universidade Aberta, Lisboa, 2019–2020 (member and president of the jury).
9. Jury for a position (programme PREVPAP) of *Professor Auxiliar* in the scientific area of “Mathematics” and “Sustainability, Environment, and Global Changes”, sub-areas of “Operations Research” and “Sustainable Management of Resources” Universidade Aberta, Lisboa, 2019 (member and president of the jury).
10. Jury for a position of *Professor Auxiliar* in the scientific area of Mathematics, sub-areas of Mathematical Analysis and Numerical Analysis, or Statistics, Universidade Aberta, Lisboa, 2018 (member of the jury).
11. Jury for a position of *Professor Adjunto* in the the scientific area of Applied Mathematics, Instituto Superior de Contabilidade e Administração de Lisboa, Instituto Politécnico de Lisboa, Portugal, 2014–2015 (member of the jury).
12. Jury for a position of *Professor Auxiliar* in the scientific area of Statistics/Probabilities/Stochastic Processes, Universidade Aberta, Lisboa, Portugal, 2011 (president of the jury).
13. Public examination for a position of *Professor Coordenador*, scientific area of Mathematics, disciplinary group of *Análise Matemática*. Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Portugal, November 2007 (main examiner).

12 Scientific Events (Conferences, Meetings, Schools, Seminars, Symposia, Workshops)

12.1 Organization

1. *Manhãs de Matemática na AbERTA*, session #03, dedicated to Dynamical Systems, Universidade Aberta, Delegação do Porto, July 6, 2023. (co-organizer: M. Bessa)
2. *Manhãs de Matemática na AbERTA*, session #02, dedicated to Algebra, Universidade Aberta, Lisboa, May 29, 2023.
3. *Manhãs de Matemática na AbERTA*, session #01, dedicated to Geometry, Universidade Aberta, Lisboa, September 21, 2021.

4. Special session *Partial differential equations in life and health sciences*, in the National Encounter of the Portuguese Mathematical Society 2018, Bragança, Portugal, July 2018
(co-organizer: J. Correia)
5. Special session *Cluster evolution equations: coagulation, fragmentation, and related systems*, in the AMS-EMS-SPM International Meeting 2015, Porto, Portugal, July 2015
(co-organizer: W. Lamb)
6. Summer school of the Portuguese Mathematical Society (about the theme “Mathematics of Planet Earth”), Museu Nacional de História Natural e da Ciência, Universidade de Lisboa, Portugal, September 2013
(co-organizers: J. Buescu, C.M. Martins, J.T. Pinto)
7. Workshop *Matemática e Física de Aerossóis*, Universidade de Évora, Portugal, May 2013
(co-organizers: J. Correia, M. Oliveira, R. Sasportes, H. Silva)
8. 4th IST-IME Meeting: Ordinary and Partial Differential Equations and Related Topics; Honoring the 60th Birthday of Luís T. Magalhães and Carlos Rocha, IST, Lisboa, Portugal, September 2012
(co-organizers: L. Barreira, P. Girão, P.G. Henriques, J. Matias, J.P. Matos, W. Oliva (president), H. Oliveira, J.T. Pinto)
9. Encuentro UAb-UNED-UOC de Matemáticas, Universidad Nacional de Educación a Distancia, Madrid, Spain, April 2010.
(co-organizers: A. Costa, M^a.A. Huertas)
10. IVth Workshop on Statistics, Mathematics and Computation, Fundação Calouste Gulbenkian, Lisboa, Portugal, November 2009.
(co-organizers: J. Araújo, R. Lima, A. Oliveira, T. Oliveira (president), R. Ramos, R. Sasportes, S. Seixas, V. Zaidam)
11. Seminars *Matemática na AbERTA*, (approximately monthly). Universidade Aberta, Lisboa, Portugal, January 2008–July 2009 (19 sessions).
12. Minisymposium on Computation and Analysis in Coagulation-Fragmentation Equations, part of the 6th International Conference of Numerical Analysis and Applied Mathematics, Kos, Greece, September 2008.
(co-organizer: M. Grinfeld)
13. III Workshop on Statistics, Mathematics and Computation and 1st Portuguese-Polish Workshop on Biometry, Universidade Aberta, Lisboa, Portugal, July 2008.
(co-organizers: S. Caeiro, E. Carolino, S. Mejza, P. Nicolau, A. Oliveira, T. Oliveira (president) , R. Ramos, R. Sasportes, S. Seixas)
14. II Workshop on Statistics, Mathematics and Computation, Universidade Aberta, Lisboa, Portugal, November 2006.
(co-organizers: A. Cerveira, J. Coelho, A. Oliveira, T. Oliveira (president), R. Ramos, V. Rocio)

15. Coagulation-Fragmentation Processes: Theory and Applications, International Centre for Mathematical Sciences, Edinburgh, United Kingdom, July 2005.
(co-organizers: M. Grinfeld, W. Lamb, J. Wattis)
16. Conference on Differential Equations and Dynamical Systems, Instituto Superior Técnico, Lisboa, Portugal, July 2000.
(co-organizers: R. L. Fernandes, P. G. Henriques, C. Rocha (president))
17. Conference on Dynamical Systems and Evolutionary Equations, Instituto Superior Técnico, Lisboa, Portugal, November 1998.
(co-organizador: C. Rocha (president))

12.2 Participation

(The list below contains participation without presentation of communication; participations with presentations are listed in Section 6; participations as organizer are listed in Subsection 12.1.)

1. Encontro Nacional da Sociedade Portuguesa de Matemática, Instituto Politécnico de Tomar, Tomar, Portugal, July 2022.
2. European Mathematical Society 30th Anniversary Meeting, International Centre for Mathematical Sciences, Bayes Centre, Edinburgh, United Kingdom, March 2022.
3. 8th European Congress of Mathematics, Portorož, Slovenia, (online), June 2021.
4. Geometric and Topological Methods in Liquid Crystals, Special Interest Group, UK Fluids Network, De Morgan House, London, United Kingdom, April 2018.
5. Stochastic and Deterministic Mathematical Methods for Biological and Environmental Systems: Theory & Applications, Universidade da Madeira, Funchal, Portugal, September 2017.
6. Encontro Nacional da Sociedade Portuguesa de Matemática, Escola Superior de Tecnologia do Barreiro, Instituto Politécnico de Setúbal, Barreiro, Portugal, July 2016.
7. European Mathematical Society 25th Anniversary: “Challenges for the Next 25 Years”, Institut Henri Poincaré, Paris, France, October 2015.
8. Escola de Verão da Sociedade Portuguesa de Matemática, Universidade de Aveiro, Portugal, September 2015.
9. V Iberian Mathematical Meeting, Universidade de Aveiro, October 2014.
10. Encontro Nacional da Sociedade Portuguesa de Matemática, Universidade Nova de Lisboa, Monte da Caparica, Portugal, June 2014.
11. Ciência 2010: Encontro com a Ciência e Tecnologia em Portugal, Centro de Congressos de Lisboa, July 2010. (Moderator of session on *Applied Partial Differential Equations*).

12. 6th International Conference of Numerical Analysis and Applied Mathematics, Kos, Greece, September 2008.
13. Workshop *A Ciência na “Aula da Esfera” do Colégio de Santo Antão*, Biblioteca Nacional de Portugal, Lisboa, Portugal, April 2008.
14. CIM Short Course on Trends in Theoretical Epidemiology, Centro Internacional de Matemática, Coimbra, Portugal, May 2007.
15. Mathematics in Chemistry, CIM–Complexo Interdisciplinar da Universidade de Lisboa, Lisboa, Portugal, July 2006.
16. Nonlinear Parabolic Problems, CMAF/Universidade de Lisboa, Lisboa, Portugal, May 1999.
17. Dynamical Systems and Pattern Formation, Leiden University, Leiden, The Netherlands, October 1997.
18. International Conference on Applied Analysis, Instituto Superior Técnico, Lisboa, Portugal, February–March 1997.
19. Encontro de Sistemas Dinâmicos, Centro Internacional de Matemática, Coimbra, Portugal, September 1996.
20. História das Ciências Matemáticas: Portugal e o Oriente, Convento da Arrábida, Portugal, November 1995.
21. NATO ASI Meeting “From finite to infinite dimensional dynamical systems”, Isaac Newton Institute for Mathematical Sciences, Cambridge, United Kingdom, August 1995.
22. EQUADIFF 95, International Conference on Differential Equations, Lisboa, Portugal, July 1995.
23. SERC Conference on The Mathematics of Nonlinear Systems, Bath, United Kingdom, July 1991.
24. SIAM Conference on Dynamical Systems, Orlando FL, United States, May 1990.
25. IV Encontro Nacional da Sociedade Portuguesa de Matemática, Porto, Portugal, 1989.
26. Colóquio Internacional Anastácio da Cunha, Lisboa, Portugal, 1987.
27. XII Jornadas Luso-Espanholas de Matemática, Braga, Portugal, 1987.
28. V Encontro de Física-Matemática, Coimbra, Portugal, 1986.
29. 9º Encontro Anual da Sociedade Portuguesa de Química, Coimbra, Portugal, 1986.
30. 8º Encontro Anual da Sociedade Portuguesa de Química, Braga, Portugal, 1985.
31. 7º Encontro Anual da Sociedade Portuguesa de Química, Lisboa, Portugal, 1984.

32. 6º Encontro Anual da Sociedade Portuguesa de Química, Aveiro, Portugal, 1983.
33. Norwich Chemical Olympiad, University of East Anglia, Norwich, United Kingdom, July 1981.

13 Events about Teaching

13.1 Organization

1. 10th International Workshop on Mathematical e-Learning (eMath 2018), Universidade Aberta, Lisboa, Portugal, October 2018.
(co-organizers: T. Oliveira, P. Serranho)
<https://eventos.uab.pt/10emath2018/>
2. One-day meeting CNM-CIM “Matemática no Acesso ao Ensino Superior”, Universidade de Lisboa, Lisboa, June 15, 2018.
(co-organizer: H. Oliveira)
<https://sites.google.com/view/maes2018>
3. 7th International Workshop on Mathematical e-Learning (eMath 2015), Universidade Aberta, Porto, Portugal, July 2015.
(co-organizers: C. Nunes, A. Oliveira, T. Oliveira)
<https://sites.google.com/site/7themath2015/>
4. 6th International Workshop on Mathematical e-Learning (eMath 2014), Universitat Oberta de Catalunya, Barcelona, Spain, April 2014.
(co-organizers: A. Costa, M^a.A. Huertas, A.A. Juan)
http://www.uoc.edu/portal/en/symposia/emath_2014/
5. 4th International Workshop on Mathematical e-Learning (E-MATH 2012), Universidade Aberta, Lisboa, Portugal, July 2012.
(co-organizers: A. Costa, M^a.A. Huertas, A.A. Juan, A. Oliveira, T. Oliveira)
<https://sites.google.com/site/4emath2012/>
6. 3rd International Workshop on Mathematical e-Learning (E-MATH 2011), eLearn Center - Universitat Oberta de Catalunya, Barcelona, Spain, June 2011.
(co-organizers: A. Costa, M^a.A. Huertas, A.A. Juan)
7. Matemática a Distância no Contexto Ibérico, Universidade Aberta, Lisboa, Portugal, June 2009.
(co-organizers: A. Costa, M^a.A. Huertas)

13.2 Participation

1. 14th International Workshop on Mathematical e-Learning (E-MATH 2022), Universidad Nacional de Educación a Distancia, Madrid, Spain, November 2022.
2. 13th International Workshop on Mathematical e-Learning (E-MATH 2021), Universidade Aberta, Lisboa, Portugal, November 2021.

3. 2^a Conferência Internacional do Espaço Matemático em Língua Portuguesa, Universidade Eduardo Mondlane, Maputo, Mozambique, November 2019.
4. 11th International Workshop on Mathematical e-Learning (E-MATH 2019), Universidad Nacional de Educación a Distancia, Madrid, Spain, October 2019.
5. 8th International Workshop on Mathematical e-Learning (E-MATH 2016), Universidad Nacional de Educación a Distancia, Madrid, Spain, May 2016.
6. 1^a Conferência Internacional do Espaço Matemático em Língua Portuguesa, Universidade de Coimbra, Coimbra, Portugal, October 2015.
7. 5th International Workshop on Mathematical e-Learning (E-MATH 2013), Universidad Nacional de Educación a Distancia, Madrid, Spain, April 2013.
8. Elearning UAb 2010, LEaD Workshop: Práticas de Elearning, Universidade Aberta, Lisboa, Portugal, June 2010.
9. Encuentro UAb-UNED-UOC de Matemáticas, Universidad Nacional de Educación a Distancia, Madrid, Spain, April 2010.
10. Impact of ICT on the Teaching of Mathematics and on the Mathematics Curriculum, 5th JEM Workshop, Institut Finlandais, Paris, France, November 2008.
11. EDEN 2008, European Distance and e-Learning Network Annual Conference, Centro Cultural de Belém, Lisboa, Portugal, June 2008.
12. e+Calculus, JEM Workshop 1, Universidade de Lisboa, Lisboa, Portugal, February 2007.

14 Other Events

14.1 Participation

1. Investigação e Ciência na Universidade Aberta: da Visão à Ação [Research and Science at *Universidade Aberta*: from Vision to Action], Universidade Aberta, Lisboa, October 22–23, 2018. Member of the panel on “Linhas de Investigação: o Caso da UAb” [“Research Lines: the UAb case”].
2. 101th European Study Group with Industry, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Monte da Caparica, Portugal, May 5–9, 2014.

15 Editorial Activities

15.1 Editorial Committees

1. Editor-in-chief of the *European Mathematical Society Magazine* (formerly *Newsletter*) (July 2020–June 2024).

2. Member of the editorial board of the *Newsletter of the European Mathematical Society*. (2017 – 2020).
3. Member of the editorial advisory board of the publication: A.A. Juan, M.A. Huertas, S. Trenholm, C. Steegmann (Eds.): *Teaching mathematics online: emergent technologies and methodologies*, IGI Global, Hershey PA, 2012 (ISBN-13: 9781609608750, DOI: 10.4018/978-1-60960-875-0).
4. Member of the editorial board of the *International Journal of Biomathematics and Biostatistics*. (2010).
5. Co-Editor of the special number *Coagulation-fragmentation Processes*, of *Physica D: Nonlinear Phenomena*, vol. **222**, 2006 (special issue). (co-editors: M. Grinfeld, W. Lamb, J. Wattis)

15.2 Editorial Councils

1. Member of the *Conselho Editorial* of the Universidade Aberta, Portugal, (2008 – 2010).

15.3 Refereeing in International Publications

1. Annales de l'Institut Henri Poincaré — Analyse Non Linéaire
2. Communications in Information and Systems
3. Journal of Mathematical Analysis and Applications
4. Journal of Physics A: Mathematical and Theoretical
5. Kinetic and Related Models
6. Mathematical Methods in the Applied Sciences
7. Nonlinear Analysis: Real World Applications
8. Nonlinearity
9. Physica D
10. Proceedings of the Edinburgh Mathematical Society
11. Proceedings of the Royal Society (London), Series A
12. Proceedings of the Royal Society of Edinburgh, Series A
13. Revista de Universidad y Sociedad del Conocimiento
14. SIAM Journal of Applied Mathematics
15. SIAM Journal of Mathematical Analysis
16. Zeitschrift für angewandte Mathematik und Physik

15.4 Scientific Reviews

1. Mathematical Reviews (2008-present, 51 reviews)

15.5 Translations of Scientific Articles

1. *Metastability of stochastic partial differential equations and Fredholm determinants*, by Nils Berglund, *Newsletter of the European Mathematical Society*, **117**, 6–14 (September 2020); translation of the French original published in *La Gazette des Mathématiciens*, (No. 163, 14–25, Janvier 2020).
2. *The Littlewood-Paley theory: a common thread of many works in nonlinear analysis*, by Hajer Bahouri, *Newsletter of the European Mathematical Society*, **112**, 15–23 (June 2019); translation of the French original published in *La Gazette des Mathématiciens*, (No. 154, pp. 28–39, Octobre 2017).
3. *Systems of points with Coulomb interactions*, by Sylvia Serfaty, *Newsletter of the European Mathematical Society*, **110**, 16–21 (December 2018); translation of the French original published in *La Gazette des Mathématiciens*, (No. 157, pp. 29–37, Juillet 2018).
4. *Tell me a pseudo-Anosov*, by Erwan Lanneau, *Newsletter of the European Mathematical Society*, **106**, 12–16 (December 2017); translation of the French original published in *La Gazette des Mathématiciens*, (No. 151, pp. 52–57, Janvier 2017).

15.6 Translations of Pedagogical Articles

1. *O ensino da matemática escolar aos futuros professores*, by Hung-Hsi Wu, *Gazeta de Matemática*, **196**, 20–29 (March 2022); translation of the English original published in *European Mathematical Society Magazine*, (No. 122, 39–45, December 2021).

16 Didactical Materials in Mathematics

16.1 Authorship of Books

1. *Equações Diferenciais Ordinárias*, Coleção Ensino da Ciência e da Tecnologia, Vol. 1, IST Press, Lisboa, 1998. (Corrected 2nd Edition: 2001). ISBN 978-972-8469-00-9. (in Portuguese)

16.2 Edition of Books

1. *Matemática do Planeta Terra*, IST Press, Lisboa, 2013. (Corrected 2nd Edition: 2014). ISBN 978-989-8481-26-9. (in Portuguese)
(co-editors: J. Buescu, J.T. Pinto)

16.3 Translation of Books

1. *Modelação Matemática em Dimensão Um: Uma Introdução Via Equações Diferenciais e às Diferenças*, Coleção Ensino da Ciência e da Tecnologia, Vol. 58, IST Press, Lisboa, 2017. ISBN 978-989-8481-05-4; Translation into Portuguese of the English original: *Mathematical Modelling in One*

Dimension: An Introduction Via Difference and Differential Equations, by Jacek Banasiak, AIMS Library of Mathematical Sciences, Cambridge University Press, Cambridge, 2013. ISBN 9781107654686.
(co-translator: F. Oliveira)

2. *Análise Funcional Linear*, Coleção Ensino da Ciência e da Tecnologia, Vol. 39, IST Press, Lisboa, 2011. ISBN 978-989-8481-05-4; Translation into Portuguese of the English original: *Linear Functional Analysis*, 2nd Edition, by Bryan P. Rynne and Martin A. Youngson, Springer-Verlag, London, 2008. ISBN 978-1-84800-004-9.

16.4 Self-published texts

1. *Alguns Exemplos de Equações Diferenciais Ordinárias em Economia*, Universidade Aberta, Lisboa, fevereiro 2020, pp. 13. (in Portuguese)
<http://hdl.handle.net/10400.2/9299>
2. *Uma Breve Introdução à Modelação Matemática*, Sociedade Portuguesa de Matemática, Lisboa, July 2018, pp. 49. (in Portuguese)
<http://hdl.handle.net/10400.2/7413>
3. *An Introduction to Ordinary Differential Equations*, Savannakhet University, Savannakhet, Laos, 2017, pp. 25.
<http://hdl.handle.net/10400.2/6393>
4. *Brevíssima Introdução a Modelos Matemáticos das Pescas*, Universidade Aberta, Lisboa, June 2016, pp. 44. (in Portuguese)
<http://hdl.handle.net/10400.2/5504>
5. *Primitivas e Integrais*, Sociedade Portuguesa de Matemática, Lisboa, April 2015, pp. 67. (in Portuguese)
<http://hdl.handle.net/10400.2/3888>
6. *A Forma Canónica de Jordan*, Universidade Aberta, Lisboa, March 2012, pp. 37. (in Portuguese)
<http://hdl.handle.net/10400.2/3743>
7. *Funções: Noções Elementares*, Universidade Aberta, Lisboa, August 2010, pp. 118. (in Portuguese)
<http://hdl.handle.net/10400.2/1906>
(co-author: M^a.J. Oliveira)
8. “*Food for Thought*” #1-#4, Universidade Aberta, Departamento de Ciências Exactas e Tecnológicas, October 2008, pp. 31. (in Portuguese)
<http://www.univ-ab.pt/%7Efcosta/FoodForThought.pdf>
9. *Construções Geométricas*, Universidade Aberta, Departamento de Ciências Exactas e Tecnológicas, May 2007, pp. 78. (in Portuguese)
<http://hdl.handle.net/10400.2/1442>
10. *Testes e Exames Resolvidos de Equações Diferenciais*, Instituto Superior Técnico, Departamento de Matemática, September 1998, pp. vi+294. (in Portuguese)
<http://hdl.handle.net/10400.2/6412>

16.5 Other Materials

1. *Vídeos de Álgebra Linear*. Series of 26 short videos to support teaching of the Linear Algebra I course at Universidade Aberta, Portugal, October 2012—February 2016. (in portuguese)
(Technical Team: N. Barrela, F. Ferreira, J. Firmino, M. Nunes).
https://www.math.tecnico.ulisboa.pt/~fcosta/videos_algebra_linear.html

16.6 Other Didactical Texts

1. *L^AT_EX no MOODLE: um breve guia para o ignaro*, Universidade Aberta, Departamento de Ciências Exactas e Tecnológicas, August 2007, pp. 31. (in portuguese)
<http://hdl.handle.net/10400.2/1441>

17 Teaching Activities

17.1 Coordination of Formal Programmes

1. Coordinator of the *PhD Programme in Applied Mathematics and Modelling* of the Universidade Aberta, Portugal (course part in *e-learning* supported in moodle platform), in 2014–2017 and 2018–present.
2. Vice-coordinator of the *PhD Programme in Applied Mathematics and Modelling* of the Universidade Aberta, Portugal (course part in *e-learning* supported in moodle platform), in 2017–2018.
3. Coordinator of the *MSc Programme in Statistics, Mathematics and Computation*, of the Universidade Aberta, Portugal (course part in *e-learning* supported in moodle platform), in 2006/08, , and responsible to its adaptation to the new European format (Bologna process).
4. Coordinator of the *BSc Programme in Statistics and Applications* of the Universidade Aberta, Portugal (entirely in *e-learning* supported in moodle platform), in 2006/08, and responsible to its adaptation to the new European format (Bologna process).

17.2 Coordination of Informal Programmes

1. Scientific–Pedagogical Coordinator of the life long b-learning actions on the *Metas de Matemática para o Ensino Básico*, under contract with the Ministry of Education and Science, registered in the *Conselho Científico-Pedagógico da Formação Contínua* with the references CCPFC/ACC-73657/13, CCPFC /ACC-73658/13, CCPFC/ACC-73659/13. Universidade Aberta, Portugal (September 2013–January 2014).
2. Responsible by the formation programme (e-learning) in L^AT_EX to write mathematical formulas in forums of the e-learning platform MOODLE, to new undergraduate students of several programmes of the Universidade Aberta (September and October 2011).

3. Vice-coordinator of the *Qualifying Programme for Higher Studies*, of the Universidade Aberta, from January to July 2010, and co-responsible for its conception.
4. Coordinator of the life long learning programme (video-conference) of actualization of Mathematics knowledge of elementary school teachers of East Timor, Departamento de Ciências Exactas e Tecnológicas, Universidade Aberta, Portugal (May and June 2007).

17.3 Teaching in Formal Programmes

(The results of student evaluation of performance will be indicated whenever available, being: “T” global appreciation about lectures, “P” global appreciation about tutorial classes, “O” global appreciation about online teaching.)

17.3.1 African Institute for Mathematical Sciences — South Africa

Responsibility and teaching via video conference system:

1. Differential Equations
 - 2021/22: at AIMS South Africa Structured Masters
 - 2020/21: at AIMS South Africa Structured Masters

Design and teaching of lectures–tutorials mixed sessions:

1. Differential Equations
 - 2023/24: at AIMS South Africa Structured Masters
 - 2019/20: at AIMS South Africa Structured Masters
 - 2018/19: at AIMS South Africa Structured Masters
2. Differential Equations in Population Models
 - 2015/16: at AIMS South Africa Structured Masters
at AIMS South Africa Honours in Biomathematics

17.3.2 Heriot-Watt University

Tutorial Support:

1. 1991/92: *Tutorial Support* to Calculus courses at Heriot-Watt University, Edinburgh, under the supervision of Dr. Nick Gilbert.

17.3.3 Instituto Superior Técnico, Universidade Técnica de Lisboa

Responsibility for the course, lecturing, and tutorials:

1. Análise Matemática I
 - 2000/01: at BEng in Electrotechnical & Computer Eng. (T: 3,84/5, P: 3,96/5)
 - 1999/00: at BEng in Biological Eng. (T: 3,58/5, P: 3,47/5)

- at BEng in Chemical Eng. (T: 3,09/5, P: 3,00/5)
2. Análise Matemática II
- 1999/00: at BEng in Biological Eng. (T: 4,16/5, P: 4,21/5)
at BEng in Chemical Eng. (T: 4,10/5, P: 3,09/5)
3. Análise Matemática IV
- 2004/05: at BSc in Informatics
at BEng in Biomedical Eng.
at BEng in Technological Physics Eng. (T: 4,00/5, P: 4,12/5)
at BSc in Applied Maths & Computing (T: 3,83/5, P: 3,83/5)
- 2003/04: at BSc in Informatics
at BEng in Aerospacial Eng. (T: 3,56/5, P: 4,13/5)
at BEng in Biomedical Eng. (T: 3,55/5, P: 3,60/5)
at BEng Materials Eng.
at BEng in Mechanical Eng.
at BEng in Mining Eng. e Georrecursos
at BSc in Applied Maths & Computing (T: 4,29/5, P: 4,08/5)
- 2002/03: at BSc in Informatics (T: 4,50/5, P: 4,17/5)
at BEng in Aerospacial Eng. (T: 3,95/5, P: 3,94/5)
at BEng in Environmental Eng. (T: 4,10/5, P: 4,13/5)
at BEng in Technological Physics Eng. (T: 4,00/5, P: 4,07/5)
at BSc in Applied Maths & Computing (T: 4,75/5, P: 4,50/5)
4. Equações Diferenciais
- 1997/98: at BEng in Aerospacial Eng.
at BEng in Environmental Eng.
at BEng in Mechanical Eng.
- 1996/97: at BEng in Aerospacial Eng.
at BEng in Environmental Eng.
at BEng in Mechanical Eng.
- 1995/96: at BEng in Aerospacial Eng.
at BEng in Environmental Eng.
at BEng in Mechanical Eng. (T: 3,94/5, P: 4,00/5)
- 1994/95: at BEng in Environmental Eng.
at BEng in Mechanical Eng. (T: 3,33/5)
- 1993/94: at BEng in Mechanical Eng.
5. Equações Diferenciais Parciais I
- 1998/99: at BSc in Applied Maths & Computing
6. Fundamentos de Equações Diferenciais Parciais
- 1998/99: at MSc in Applied Mathematics

Responsibility for the course and lecturing:

1. Análise Matemática II

1999/00: at BSc in Chemistry (T: 4, 33/5)

2. Análise Matemática III

1994/95: at BEng in Civil Eng.

at BEng in Chemical Eng.

1993/94: at BEng in Aeroespacial Eng.

at BEng in Technological Physics Eng. (T: 4, 09/5)

at BEng Materials Eng.

at BEng in Mechanical Eng. (T: 4, 33/5)

at BEng in Mining Eng.

at BEng in Naval Eng.

at BEng in Chemical Eng. (T: 2, 35/5)

at BSc in Applied Maths & Computing (T: 3, 55/5)

3. Análise Matemática IV

2004/05: at BEng in Aeroespacial Eng. (T: 3, 13/5)

2003/04: at BEng in Technological Physics Eng. (T: 3, 50/5)

2002/03: at BEng in Biological Eng. (T: 4, 33/5)

at BEng in Biomedical Eng. (T: 2, 75/5)

at BEng in Chemical Eng. (T: 4, 17/5)

at BSc in Chemistry (T: 3, 13/5)

Lecturing:

1. Análise Matemática I

1989/90: at BEng in Civil Eng.

at BEng in Electrotechnical & Computer Eng.

at BEng in Technological Physics Eng.

at BEng in Materials Eng.

at BEng in Mechanical Eng. (T: 4, 00/5)

at BEng in Mining Eng.

at BEng in Naval Eng. (T: 4, 60/5)

at BEng in Chemical Eng.

at BSc in Applied Maths & Computing

1988/89: at BEng in Civil Eng.

at BEng in Materials Eng.

at BEng in Mining Eng.

at BEng in Chemical Eng.
1987/88: at BEng in Electrotechnical & Computer Eng.
at BEng in Mechanical Eng. (T: 3, 80/5)
1986/87: at BEng in Civil Eng. (T: 2, 95/5)
at BEng in Materials Eng.
at BEng in Mining Eng. (T: 2, 30/5)
at BSc in Chemistry

2. Análise Matemática II

1986/87: at BEng in Civil Eng.
at BEng in Materials Eng.
at BEng in Mining Eng.
at BSc in Chemistry

Tutorials:

1. Análise Matemática III

1985/86: at BEng in Electrotechnical & Computer Eng.
at BEng in Mechanical Eng.

2. Equações Diferenciais Ordinárias

1988/89: at BSc in Applied Maths & Computing

Laboratories:

1. Química-Física I

1984/85: at BEng in Chemical Eng.
1983/84: at BEng in Chemical Eng.

2. Química-Física II

1984/85: at BEng in Chemical Eng.
1983/84: at BEng in Chemical Eng.

17.3.4 National University of Laos, Vientiane, Laos

Responsibility for the course and lecturing:

1. Ordinary Differential Equations

2017/18: at MSc in Applied Mathematics

17.3.5 Universidade Aberta

Responsibility and e-learning instruction:

1. Álgebra Linear I
 - 2011/12: at BSc in Informatics
at BSc in Mathematics and Applications
2. Álgebra Linear II
 - 2018/19: at BSc in Mathematics and Applications
 - 2016/17: at BSc in Mathematics and Applications
 - 2015/16: at BSc in Mathematics and Applications
 - 2014/15: at BSc in Mathematics and Applications
 - 2013/14: at BSc in Mathematics and Applications
 - 2012/13: at BSc in Mathematics and Applications
 - 2011/12: at BSc in Mathematics and Applications
3. Análise de Fourier e Aplicações
 - 2022/23: at BSc in Mathematics and Applications
 - 2021/22: at BSc in Mathematics and Applications
 - 2020/21: at BSc in Mathematics and Applications
 - 2019/20: at BSc in Mathematics and Applications
 - 2018/19: at BSc in Mathematics and Applications
 - 2016/17: at BSc in Mathematics and Applications
4. Análise Funcional
 - 2015/16: at BSc in Mathematics and Applications
 - 2014/15: at BSc in Mathematics and Applications
 - 2013/14: at BSc in Mathematics and Applications
 - 2012/13: at BSc in Mathematics and Applications
 - 2011/12: at BSc in Mathematics and Applications
 - 2009/10: at BSc in Mathematics and Applications
5. Análise Não Linear
 - 2023/24: at PhD in Applied Mathematics and Modelling
 - 2022/23: at PhD in Applied Mathematics and Modelling
 - 2021/22: at PhD in Applied Mathematics and Modelling
 - 2020/21: at PhD in Applied Mathematics and Modelling
 - 2019/20: at PhD in Applied Mathematics and Modelling
 - 2018/19: at PhD in Applied Mathematics and Modelling
6. Elementos de Análise Infinitesimal I

- 2008/09: at BSc in Statistics and Applications
 at BSc in Informatics
 at BSc in Mathematics and Applications
7. Elementos de Análise Infinitesimal II
- 2023/24: at BSc in Mathematics and Applications
 2022/23: at BSc in Mathematics and Applications
 2021/22: at BSc in Mathematics and Applications
 2020/21: at BSc in Mathematics and Applications
 2019/20: at BSc in Mathematics and Applications
 2018/19: at BSc in Mathematics and Applications
 2008/09: at BSc in Mathematics and Applications
 at BSc in Statistics and Applications
8. Elementos de Análise Infinitesimal III
- 2023/24: at BSc in Mathematics and Applications
 2022/23: at BSc in Mathematics and Applications
 2021/22: at BSc in Mathematics and Applications
 2020/21: at BSc in Mathematics and Applications
 2019/20: at BSc in Mathematics and Applications
 2018/19: at BSc in Mathematics and Applications
 2014/15: at BSc in Mathematics and Applications
 2013/14: at BSc in Mathematics and Applications
 2012/13: at BSc in Mathematics and Applications
 2011/12: at BSc in Mathematics and Applications
 2009/10: at BSc in Mathematics and Applications
 2008/09: at BSc in Mathematics and Applications
9. Elementos de Análise Infinitesimal IV
- 2015/16: at BSc in Mathematics and Applications
 2014/15: at BSc in Mathematics and Applications
 2013/14: at BSc in Mathematics and Applications
 2012/13: at BSc in Mathematics and Applications
 2011/12: at BSc in Mathematics and Applications
 2009/10: at BSc in Mathematics and Applications
 2008/09: at BSc in Mathematics and Applications
10. Equações Diferenciais II
- 2014/15: at BSc in Mathematics and Applications
11. Equações Diferenciais Aplicadas à Macroeconomia

- 2022/23: at BSc in Mathematics Applied to Management
 2021/22: at BSc in Mathematics Applied to Management
 2020/21: at BSc in Mathematics Applied to Management
 2019/20: at BSc in Mathematics Applied to Management
12. Equações Diferenciais em Dinâmica de Populações
- 2019/20: at MSc in Biostatistics and Biometry
 2018/19: at MSc in Biostatistics and Biometry
 2016/17: at MSc in Biostatistics and Biometry
 2015/16: at MSc in Biostatistics and Biometry
 2013/14: at MSc in Biostatistics and Biometry
 2012/13: at MSc in Biostatistics and Biometry
13. Equações Diferenciais Ordinárias
- 2023/24: at PhD in Applied Mathematics and Modelling
 2022/23: at PhD in Applied Mathematics and Modelling
 2021/22: at PhD in Applied Mathematics and Modelling
 2020/21: at PhD in Applied Mathematics and Modelling
 2016/17: at PhD in Applied Mathematics and Modelling
 2015/16: at PhD in Applied Mathematics and Modelling
14. Equações Diferenciais Parciais
- 2015/16: at BSc in Mathematics and Applications
15. Introdução à Modelação Matemática
- 2016/17: at MSc in Mathematics for Teachers
16. Introdução à Modelação Matemática e Estatística
- 2018/19: at BSc in Mathematics and Applications
 2016/17: at BSc in Mathematics and Applications
17. Matemática Aplicada à Gestão
- 2015/16: at BSc in Management
18. Sistemas Dinâmicos
- 2013/14: at BSc in Mathematics and Applications
 2012/13: at BSc in Mathematics and Applications
19. Tópicos de Análise Aplicada
- 2022/23: at MSc in Statistics, Mathematics and Computation

Responsibility and traditional distance learning instruction:

1. Análise I
 - 2006/07: at BSc in Teaching of Mathematics
at BSc in Teaching of Mathematics & Natural Sciences
 - 2005/06: at BSc in Teaching of Mathematics
at BSc in Teaching of Mathematics & Natural Sciences
2. Análise Infinitesimal II
 - 2006/07: at BSc in Applied Mathematics
 - 2005/06: at BSc in Applied Mathematics
3. Análise Matemática
 - 2004/05: at BSc in Management
4. Complementos de Matemática
 - 2008/09: at BSc in Statistics and Applications
 - 2007/08: at BSc in Statistics and Applications
5. Estatística para as Ciências Sociais
 - 2006/07: at BSc in Social Sciences
6. Fundamentos da Matemática
 - 2008/09: at BSc in Teaching of Mathematics
at BSc in Complements for 1st Cycle Elementary School Teachers
 - 2007/08: at BSc in Teaching of Mathematics
at BSc in Complements for 1st Cycle Elementary School Teachers
 - 2006/07: at BSc in Teaching of Mathematics
at BSc in Complements for 1st Cycle Elementary School Teachers
 - 2005/06: at BSc in Teaching of Mathematics
at BSc in Complements for 1st Cycle Elementary School Teachers
 - 2004/05: at BSc in Teaching of Mathematics
at BSc in Complements for 1st Cycle Elementary School Teachers
7. Introdução às Probabilidades e à Estatística
 - 2006/07: at BSc in Teaching of Mathematics & Natural Sciences
at BSc in Complements for 1st Cycle Elementary School Teachers

at BSc in Complements for Kindergarden Teachers

8. Processos Estocásticos Aplicados

2007/08: at BSc in Statistics and Applications

at BSc in Mathematics and Applications

9. Programação Matemática

2007/08: at BSc in Statistics and Applications

at BSc in Mathematics and Applications

10. Programação Não-Linear

2007/08: at BSc in Statistics and Applications

at BSc in Mathematics and Applications

11. Tecnologia dos Materiais Cerâmicos

2007/08: at BSc in Teaching of Technological Education

12. Tópicos de Geometria

2005/06: at BSc in Teaching of Mathematics

2004/05: at BSc in Teaching of Mathematics

17.3.6 University of Saint Joseph, Macao, China

Responsibility for the course and lecturing:

1. Methods and Techniques for Quantitative Research

2023/24: at PhD in Business Administration

2023/24: at PhD in History

2023/24: at PhD in Psychology

2023/24: at PhD in Religious Studies

2023/24: at PhD in Social Sciences

17.4 Teaching in Informal Courses and Programmes

17.4.1 Birla Institute of Technology and Science, Pilani, India

1. Short course (3 hours) on *Asymptotic Methods for Integrals*, at the *Research Workshop “Theory and Simulation of Hyperbolic PDEs arising in Mathematical Biology and Fluid Flow”*, (org.: R. Kumar, Y. Mammeri), Indo-French Center for Applied Mathematics, Birla Institute of Technology and Science, Pilani, India (January 5– 11, 2019).

17.4.2 Indian Institute of Technology Roorkee, Roorkee, India

1. Short course (3 hours) on *Coagulation-Fragmentation Models*, at the *West Asia Mathematical School on “Recent Developments and Applications of Partial Differential Equations, from Theory to Simulation”*, (org.: A. Kumar Giri, J. Correia), Indian Institute of Technology Roorkee, Roorkee, India (August 29 – September 3, 2019).
2. Short course (4 hours) on *An introduction to weak convergence techniques in coagulation equations*. Department of Mathematics, Indian Institute of Technology Roorkee, Roorkee, India (January 22 – 25, 2019).

17.4.3 Instituto Superior Técnico, Universidade Técnica de Lisboa

1. Session about the resolution of the cubic equation and complex numbers in the programme *Ciência Viva nas Férias: “Um Passeio Complexo e Outras Histórias”*, (coord.: J. Buescu, L. Barreira), for secondary school students, Centro de Análise Matemática, Geometria e Sistemas Dinâmicos, Instituto Superior Técnico, Universidade Técnica de Lisboa, Portugal (July 1999).

17.4.4 National University of Laos, Laos

1. Free course (12 hours) on *Asymptotic Methods for Integrals and Applications*, Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos (January 30 – February 16, 2019).
2. Free course (30 hours) on *Differential equations in population models*, Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos (June 5 – July 14, 2017).
3. Free course (30 hours) on *Harmonic Analysis and applications*, Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos (February 28 – May 5, 2017).
4. Short course (8 hours) on *Bifurcation problems in liquid crystal cells*, Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos (February 17–24, 2017).
5. Short course (8 hours) on *First order partial differential equations: method of characteristics and weak solutions*, Department of Mathematics, Faculty of Natural Sciences, National University of Laos, Vientiane, Laos (February, 6–15, 2017).
6. Collaboration on the short course *Infinite-dimensional dynamical systems and coagulation-fragmentation equations* at the *CIMPA School “Introduction to the mathematical analysis of differential equations and real-life applications”*, (org.: N. Bedjaoui, S. Sirisack), Centre Internationale de Mathématiques Pures et Appliquées, Nice, France / National University of Laos, Vientiane, Laos (January 2017).

17.4.5 Silpakorn University, Thailand

1. Collaboration on the short course *Exact solutions of smoothing PDEs* at the *SEAMS School Partial Differential Equations for Image Processing: Theory and Numerics*, (org.: J. Correia, Y. Mameri), Silpakorn University, Nakhon Pathon, Thailand. (January 2018)

17.4.6 Sociedade Portuguesa de Matemática

1. Short course “Uma breve introdução à modelação Matemática”, registered at the *Conselho Científico-Pedagógico da Formação Contínua* of the Ministry of Education with the number CCPFC/ACC-100749/18; Sociedade Portuguesa de Matemática, Bragança, Portugal (July 2018).
2. Short course “Primitivas e Integrais no novo Programa do Secundário de Matemática A”, registered at the *Conselho Científico-Pedagógico da Formação Contínua* of the Ministry of Education with the number CCPFC/ACC-79563/14; Sociedade Portuguesa de Matemática, Oeiras, Portugal (April 2015).

17.4.7 Universidade Aberta

1. Unit about quantitative methods in fisheries in the course *Seminário* of the pos-graduate programme *Gestão Sustentável de Recursos Marinhos: Pescas, Aquacultura e Consumo*, Universidade Aberta, Lisboa, Portugal (June–July 2016).
2. Life long b-learning action on the *Metas de Matemática para o Ensino Básico*, under contract with the Ministry of Education and Science, registered in the *Conselho Científico-Pedagógico da Formação Contínua* with the references CCPFC/ACC-73657/13; instruction of six online classes and two face-to-face sessions for 3rd Cycle Elementary School teachers; Universidade Aberta, Lisboa, Portugal (November 2013 and January 2014).
3. Life long b-learning action on the *Metas de Matemática para o Ensino Básico*, under contract with the Ministry of Education and Science, registered in the *Conselho Científico-Pedagógico da Formação Contínua* with the references CCPFC/ACC-73658/13; instruction of two online classes and one face-to-face sessions for 2nd Cycle Elementary School teachers; Universidade Aberta, Lisboa, Portugal (October–November 2013).
4. Life long e-learning action on GeoGebra with the title “Mathematical Analysis in Motion”, to Elementary and Secondary School Teachers, registered at the *Conselho Científico-Pedagógico da Formação Contínua* of the Ministry of Education under the number CCPFC/ACC-62263/10; Universidade Aberta, Lisboa, Portugal (May–June 2012).
5. Formation programme (e-learning) in \LaTeX to write mathematical formulas in forums of the e-learning platform MOODLE, to new undergraduate students of several programmes of the Universidade Aberta. (1st action: September–October 2011; 2nd action: March 2012, 3rd action: October 2012).

6. Short course on “Geometric Constructions” in the life long learning programme (video-conference) of actualization of Mathematics knowledge of elementary school teachers of East Timor, Departamento de Ciências Exactas e Tecnológicas, Universidade Aberta, Portugal (May–June 2007).

17.4.8 Universidade de Évora

1. Short course on *Introduction to problems and techniques in coagulation equations* in the *Graduate School in Differential Equations*, (org.: J. Correia, R. Sasportes), Universidade de Évora, Portugal (June 2015).

17.4.9 University of Savannakhet, Laos

1. Short course *An introduction to ordinary differential equations* in the workshop “*Training on Mathematics (TryMaths): an introduction to mathematical analysis with real life problems*”, (org.: S. Anothai, J. Correia), Faculty of Natural Sciences / Faculty of Education, University of Savannakhet, Savannakhet, Laos (January 23–27, 2017).

17.5 Sabbatical Leaves

1. Universidade Aberta: 2010/2011, 2017/2018.
2. Instituto Superior Técnico, Universidade Técnica de Lisboa: 1/3/2001 – 28/3/2002.

18 Academic Administration

18.1 Executive Positions

1. President of the Teaching Staff Evaluation Board of Universidade Aberta (from October 2020)
2. Vice-president of the Scientific Council of Universidade Aberta in 2015–2017 and 2019–2021.
3. Member of the Management Council of Universidade Aberta (October 2016–March 2019)
4. Director of the Department of Sciences and Technology of the Universidade Aberta in 2009–2010.
5. Coordinator of the Mathematics Section of the Department of Exact Sciences and Technology of Universidade Aberta in 2006–2008.
6. Vice-president of the Department of Mathematics at IST 1999–2000.
7. Budget Coordinator of the Differential Equations, Dynamical Systems, Geometry and Topology Group of the Algebra and Analysis Section of the Department of Mathematics of IST from November 1997 to April 2001.
8. Member of the Executive Commission of the Department of Mathematics of IST (1994–1996 and in January–June 1997).

18.2 Representative Positions

1. Representative of the teaching and research staff at the General Council of Universidade Aberta, in 2013–2017, 2017–2021 and in 2021–2025.
2. Representative of the Department of Sciences and Tecnology in the Scientific Council of Universidade Aberta, in 2009–2010, 2011–2013, 2013–2015, and 2015–2017.
3. Representative of Universidade Aberta in the european project “MedOANet: Mediterranean Open Access Network” (2012–2013).
4. Representative of PhD holding staff of the Department of Exact Sciences and Technology in the Coordination Commission of the Scientific Council of Universidade Aberta (2006–2008).

18.3 Consultive Positions

1. Member of the Ethics Committee of the Universidade Aberta, from July 5, 2023.
2. Member of the Restricted Commission of the Centre of Mathematical Analysis, Geometry, and Dynamical Systems of Instituto Superior Técnico, Universidade de Lisboa, from February 1, 2021.
3. Member of the Coordinating Council of the Department of Sciences and Tecnology of Universidade Aberta, in 2012/14, 2014/16, and 2018/20 (until april 2020).
4. Elected member of the Senate of Universidade Aberta (2009–2013).
5. Coordinator of the Accompanying Commission for the Strategic Plan of Universidade Aberta (2006–2010).

18.4 Task Groups

1. President of the Electoral Commission for the Election of the Rector of the UAb 2023–2027, (September–October 2023)
2. Coordinator of the Task Group for a Proposal of an Upgrading Course in Teaching of Mathematics for the African Countries of Portuguese Language (DCeT), (November 26, 2020–January 26, 2021).
3. Coordinator of the Task Group for the Definition of the Functions of the Secretariat of the Department of Sciencies and Technology (DCeT), (November 2017–July 2018)
4. President of the Task Group for the Definition of Scientific, Artistic, and Cultural Production Referentials in Universidade Aberta, (January 2016–March 2017).
5. Member of the Task Group that, under a protocol with between *Instituto Universitário de Educação de Cabo Verde* and Universidade Aberta, was at IUE, Cidade da Praia, Cabo Verde, to support the start of activities in

the IUE online courses and, afterwards, continued that support to Cape Verde instructors online. (February–March 2016).

6. Member of the Task Group for the Development of the Virtual Pedagogical Model of Universidade Aberta, (March–December 2015).
7. Member of the *ad-hoc* Task Group for the reorganization of the scientific areas of the Department of Science and Technology of Universidade Aberta (April–October 2013).
8. Coordinator of the Quality Evaluation Group of the Department of Sciences and Technology of Universidade Aberta (2013–2016).
9. Coordinator of the Mathematics & Statistics Community of the open access repository of Universidade Aberta (2010–2022).
10. Coordinator of the Task Group for the Design and Elaboration of a Proposal of a PhD Programme in Mathematics at Universidade Aberta (2012)

19 Cultural Extension

19.1 Popularization of Mathematics and General Interest

19.1.1 Texts

1. *The Mathematical Space in the Portuguese Language (EMeLP)*, Eur. Math. Soc. Newsl., **110**, 58–59 (2018).
(co-autores: Y. Baldin, M. Carneiro, M. Cherinda, J. Semedo).
2. *A survey of articles in the Newsletter of the EMS about the history and activities of full member societies of the EMS (Issue 1, September 1991 – Issue 104, June 2017)*, Eur. Math. Soc. Newsl., **104**, 61–63 (2017). [Zbl 1372.01111]
3. *Teses de doutoramento em Ciências Matemáticas defendidas nas universidades portuguesas em 2015*, Bol. Soc. Port. Mat., **74**, 1–11 (2016). (in portuguese).
(co-author: A.J. Soares).
4. *e-Math workshops: a forum for exchanging experiences of mathematics e-learning at university level*, Eur. Math. Soc. Newsl., **101**, 52–54 (2016). [Zbl 1358.97014]
(co-authors: A.F. Costa, M.A. Huertas).
5. *The Portuguese Mathematical Society (SPM) at 75*, Eur. Math. Soc. Newsl., **98**, 56–57 (2015). [Zbl 1335.01068]
6. *José Sebastião e Silva (1914-1972)*, Eur. Math. Soc. Newsl., **95**, 40–43 (2015). [MR 3330474, Zbl 1315.01033]
(co-authors: J. Buescu, L. Canto de Loura, A. Teixeira).
7. *Os porquês da Matemática*, Revista “O Colégio Militar”, **235**, 47–53, September 2014 – February 2015. (in portuguese)

19.1.2 Oral presentations

1. *Os porquês da Matemática*, Talk given at Colégio Militar, Lisboa, Portugal, 13 February 2015.
2. *A Matemática na escola*, Talk at the commemorative session of the 50th anniversary of the Júlio Dinis Secondary School, Ovar, Portugal, 21 October 2014.
3. *Em torno de temas de Matemática do Ensino Básico: divisão inteira, algoritmo de Euclides, (in)comensurabilidade, e o que mais aí vier...* Talk at the Rainha Dona Leonor Secondary School, Lisboa, Portugal, 11 January 2014.
4. *Em torno do algoritmo de Euclides*. Talk at the Padre António Vieira Secondary School, Lisboa, Portugal, 30 November 2013.
5. *Dinâmica de fluídos | A origem da vida*. Joint Session with Rui Malhó (FCUL) in the World Cafe *The Mathematics in Earth's Adventure*, Museu Nacional de História Natural e da Ciência, Universidade de Lisboa, Portugal, 22 June 2013.
6. *Porque é que a cauda do leopardo tem riscas?* Talk presented at *1^ª Jornadas de Estatística e Computação* of Universidade Aberta, Escola de Hotelaria e Turismo do Oeste, Caldas da Rainha, Portugal, May 2013.

19.2 Other cultural extension activities

19.2.1 Written journalistic interventions

1. Opinion articles published in the written press:
 - (a) *Ensino da Matemática: um regresso ao passado*, Opinion article published in *Sol* newspaper, 30 September 2017.
https://www.math.tecnico.ulisboa.pt/~fcosta/FPC_Artigo_Sol_2017_09_30_AE.pdf
 - (b) *Alterações curriculares: debate honesto ou vitória na secretaria?*, Opinion article published in *Público* newspaper, 28 November 2016. (in portuguese)
<https://www.publico.pt/2016/11/28/sociedade/noticia/alteracoes-curriculares-debate-honesto-ou-vitoria-na-secretaria>
 - (c) *Os bons, os maus e as perplexidades*, Opinion article published in *Público* newspaper, 15 January 2016. (in portuguese)
<https://www.publico.pt/2016/01/15/sociedade/noticia/os-bons-os-maus-e-as-perplexidades-1720227>
 - (d) *O que ando a ver, a ler e a ouvir*, Item published in the supplement *Quociente de Inteligência* of the *Diário de Notícias* newspaper, 9 August 2014. (in portuguese)
2. Opinion articles published monthly in the section “Intervalos” of the *Clube de Matemática* of the portuguese mathematical society:
 - (a) *Quase no fim*, 1 July 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4632/>
 - (b) *Questões e negociações*, 1 June 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4567/>

- (c) *Um abril diferente*, 1 May 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4517/>
- (d) *Uma precisão fundamental, sem fundamentalismos*, 1 April 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4454/>
- (e) *Comparações*, 1 March 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4400/>
- (f) *As discussões de sempre?*, 1 February 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4348/>
- (g) *Um intervalo para a leitura*, 1 January 2016. (in portuguese)
<http://www.clube.spm.pt/arquivo/4278/>
- (h) *Práticas & partilhas*, 1 December 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/4220/>
- (i) *O espírito do lugar*, 1 November 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/4170/>
- (j) *Aos ombros de gigantes, e de pessoas como nós...*, 1 October 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/4107/>
- (k) *Haja luz!*, 1 September 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/4042/>
- (l) *Literacia financeira, matemática e inclusão social*, 1 July 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3981/>
- (m) *A estação das conferências*, 1 June 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3900/>
- (n) *“Checks and balances”*, 1 May 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3833/>
- (o) *Matemática em todo o lado*, 1 April 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3746/>
- (p) *Recomendação sobre recomendação*, 1 March 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3669/>
- (q) *Sobre a Memória, a História e a Matemática*, 1 February 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3599/>
- (r) *Escrever ou teclar?*, 1 January 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3521/>

3. Articles published in “Cartas da Direção” of *Gazeta de Matemática*:

- (a) *A Propósito de Um Número Redondo*, *Gazeta de Matemática*, N^o 200, July 2023. (in portuguese)
- (b) *Em Jeito de Balanço*, *Gazeta de Matemática*, N^o 179, June 2016. (in portuguese)
- (c) *A Portugaliæ e a Sua Biblioteca*, *Gazeta de Matemática*, N^o 175, March 2015. (in portuguese)

- (d) *Entre Dois Doze de Dezembro*, Gazeta de Matemática, N^o 174, November 2014. (in portuguese)
- (e) *Escola de Verão da SPM e a Matemática do Planeta Terra*, Gazeta de Matemática, N^o 170, July 2013. (in portuguese)

19.2.2 Written interventions: interviews

1. Interview for the section “Clube Entrevista SPM” of the *Clube de Matemática* of the portuguese mathematical society, 1 January 2015. (in portuguese)
<http://www.clube.spm.pt/arquivo/3518>
2. *Daria 13 valores à prestação de Nuno Crato*, Interview by Micael Pereira published in portuguese weakly *Expresso*, 2 August 2014. (in portuguese)
3. *A Matemática não é chata!*, Interview by Bruna Pereira published in the magazine *MaisEducativa*, October 2013, p. 4. (in portuguese)
4. Interview about the curriculum of Mathematics for the Elementary School published in the suplement “Matemática” of the newspaper *Público*, 26 June 2013. (in portuguese)

19.2.3 Oral Interventions

1. *A importância da Ciência Aberta na avaliação docente*. Invited oral communication at the session *Ciência Aberta: uma cultura na UAb*, Universidade Aberta, Lisboa, 25 October 2022.
2. Interview for the radio TSF about Mathematical Anxiety, broadcasted in the programme “TSF Pais e Filhos” in 19 July 2015.
http://www.tsf.pt/programa/tsf_pais_e_filhos/emissoes/4.html
3. Invited talk with the title *Literacia financeira, Matemática e inclusão social*, at the conference “Literacia Financeira e Inclusão Social de Jovens”, Espaço Novo Banco, Lisboa, Portugal, 2 July 2015.
4. Invited participation in the discussion circle “José Sebastião e Silva e a Investigação Matemática em Portugal”, organized by Faculdade de Ciências, Universidade de Lisboa on the 100th anniversary of the birth of José Sebastião e Silva, Instituto para a Investigação Interdisciplinar, Universidade de Lisboa, Lisboa, Portugal, 21 May 2015.
5. Moderator of the round table “Memória viva do Professor Sebastião e Silva”, organized by the university of Lisbon on the occasion of the 100th anniversary of his birth, Lisboa, Portugal, 12 December 2014.
6. *Repositório Aberto: a experiência e os dados de um depositante*. Invited oral communication at the workshop *Repositório AbERTO: “Acesso, Visibilidade e Impacto da Produção Intelectual da UAb”*, Universidade Aberta, TagusPark, Porto Salvo, Portugal, 25 October 2011.

19.2.4 Other Interventions

1. “O relatório anual do Conselho Científico: uma janela para a produção de conhecimento na UAb” (in Portuguese), July 2020. Text written in collaboration with João Luís Cardoso with a study of the scientific production of UAb between 2016 and 2019 as reflected in the information contained in the Scientific Council’s annual reports.
<http://hdl.handle.net/10400.2/9796>
2. Segment “Fugas” of *Universidade Aberta* emission in the Portuguese RTP2 television channel, about the book *Improvizando: A Nova Geração do Jazz Português*, broadcasted on June 5, 2020.
<https://www2.uab.pt/TVUAb/videoSpot.php?Video=749>
3. Collaboration with *CTT – Correios de Portugal, SA*, on the philatelic emission commemorating the International Year of Crystallography, 2014.
<https://o-filatelista.blogspot.com/2014/07/ano-internacional-da-cristalografia.html>

20 Scientific and Professional Societies

20.1 Governing Bodies

1. Individual Member Delegate to the European Mathematical Society Council, 2020–2022
2. 1st Secretary of the General Assembly of the *Sociedade Portuguesa de Matemática* in 2018/20.
3. President of the General Assembly of the *Sociedade Portuguesa de Matemática* in 2016/18.
4. President of the Executive Board of the *Sociedade Portuguesa de Matemática* in 2014/16.
5. Vice-president of the Executive Board of the *Sociedade Portuguesa de Matemática* in 2012/14 and 2022/24.

20.2 Consultive Bodies

1. Member of the General Council of the *Sociedade Portuguesa de Matemática* (2012–present).

20.3 Membership

1. Member of the *American Mathematical Society*, (1988–present).
2. Member of the *European Mathematical Society*, (2015–present).
3. Member of the *Mathematical Association of America*, (2006–2011).
4. Member of the *Ordem dos Engenheiros* (1987–2003).
5. Member of the *Sociedade Portuguesa de Electroquímica*, (1983–1995).

6. Member of the *Sociedade Portuguesa de Matemática*, (1986–present).
7. Member of the *Sociedade Portuguesa de Química*, (1981–2000).
8. Member of the *Society for Industrial and Applied Mathematics*, (1990–1993).

21 National Relevant Duties

1. Member of the subcommission ICMI.PT of the National Commission of Mathematics (*Comissão Nacional de Matemática*) (2023–2027)
2. Delegate of Portugal to the General Assembly of the International Mathematical Union (Helsinki, Finland, July 2022)
3. Representative of Portugal in the International Commission on Mathematical Instruction of the International Mathematical Union (2017–September 2020)