

## **A- Publications**

### **A1- Books (published or edited)**

S. Pinelas, M. Chipot, and Z. Dosla (Eds.). Differential and Difference Equations with Applications. Springer Proceedings in Mathematics & Statistics, Vol. 47, 665 p., 2013.

URL: <http://www.springer.com/978-1-4614-7332-9>

### **A2- Journals Special Issues (edited)**

### **A3- Book chapters and papers in books**

P.T. An, N.N. Hai, and T.V. Hoai. The role of convexity for solving some shortest path problems in plane without triangulation. In Z.K. Eshkuvatov, A. Kilicman, and L.W. June (Eds.) - International Conference on Mathematical Sciences and Statistics (ICMSS2013), AIP Conference Proceedings 1557: 89-93, American Institute of Physics, New York, 2013.

URL: <http://dx.doi.org/10.1063/1.4823881>

E. Carrasquinha, M. H. Gonçalves, and M. S. Cabral. Generalized linear mixed effects model in the analysis of longitudinal discrete data. In J. Lita da Silva, F. Caeiro, I. Natário, C.A. Braumann, M.L. Esquível, and J.T. Mexia (Eds.), Advances in Regression, Survival Analysis, Extreme Values, Markov Processes and Other Statistical Applications, pp. 113-120, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-34904-1\\_11](http://dx.doi.org/10.1007/978-3-642-34904-1_11)

F. Ferreira, A. Pacheco, and Helena Ribeiro. Distribution of the number of losses in busy-periods of  $M^X/G/1/n$  Systems. In J. Lita da Silva, F. Caeiro, I. Natário, C.A. Braumann, M.L. Esquível, and J.T. Mexia (Eds.), Advances in Regression, Survival Analysis, Extreme Values, Markov Processes and Other Statistical Applications, pp. 163-171, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-34904-1\\_17](http://dx.doi.org/10.1007/978-3-642-34904-1_17)

N.J. Ford and M.L. Morgado. Numerical methods for multi-term fractional boundary value problems. In S. Pinelas, M. Chipot, and Z. Dosla (Eds.), Differential and Difference Equations with Applications, Springer Proceedings in Mathematics & Statistics 47:535-542, Springer, New York, 2013.

URL: [http://dx.doi.org/10.1007/978-1-4614-7333-6\\_48](http://dx.doi.org/10.1007/978-1-4614-7333-6_48)

N.J. Ford, and M.L. Morgado. Stability, structural stability and numerical methods for fractional boundary value problems. In A. Almeida, L. Castro, and F.-O. Speck (Eds.) - Advances in Harmonic Analysis and Operator Theory, Operator Theory: Advances and Applications 229:157-173, Springer, Basel, 2013.

URL: [http://dx.doi.org/10.1007/978-3-0348-0516-2\\_9](http://dx.doi.org/10.1007/978-3-0348-0516-2_9)

G. Jacinto, N. Antunes, and A. Pacheco. Modelling the duration of multihop paths in Mobile Ad Hoc Networks. In P.E. Oliveira, M.G. Temido, M. Vichi, and C. Henriques (Eds.), Recent Developments in Modeling and Applications in Statistics, pp. 249-260, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-32419-2\\_25](http://dx.doi.org/10.1007/978-3-642-32419-2_25)

P.M. Lima, M.F. Teodoro, N.J.Ford, and P. M.Lumb. Analysis and computational approximation of a forward-backward equation arising in nerve conduction. In S. Pinelas, M. Chipot, and Z. Dosla (Eds.) - Differential and Difference Equations with Applications, Springer Proceedings in Mathematics & Statistics 47:475-483, Springer, New York, 2013.

URL: [http://dx.doi.org/10.1007/978-1-4614-7333-6\\_42](http://dx.doi.org/10.1007/978-1-4614-7333-6_42)

N. Martins and M. Rebelo. A stokeslets approach for the numerical solution of Brinkman systems. Proceedings of ICNAAM 2013 - International Conference Numerical Analysis and Applied Mathematics, AIP Conference Proceedings 1558:746-749, American Institute of Physics, New York, 2013.

URL: <http://dx.doi.org/10.1063/1.4825601>

A. Pedro and P.M. Lima. Existence of nonoscillatory solutions of the discrete FitzHugh-Nagumo S system. In S. Pinelas, M. Chipot, and Z. Dosla (Eds.) - Differential and Difference Equations with Applications, Springer Proceedings in Mathematics & Statistics 47:551-560, Springer, New York, 2013.

URL: [http://dx.doi.org/10.1007/978-1-4614-7333-6\\_50](http://dx.doi.org/10.1007/978-1-4614-7333-6_50)

P.F. Ramos, M.C. Morais, and A. Pacheco. Misleading signals in simultaneous residual schemes for the process mean and variance of AR(1) processes: a stochastic ordering approach. In J. Lita da Silva, F. Caeiro, I. Natário, C.A. Braumann, M.L. Esquível, and J.T. Mexia (Eds.), Advances in Regression, Survival Analysis, Extreme Values, Markov Processes and Other Statistical Applications, pp. 173-182, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-34904-1\\_18](http://dx.doi.org/10.1007/978-3-642-34904-1_18)

P.F. Ramos, M.C. Morais, A. Pacheco, and W. Schmid. Misleading signals in simultaneous schemes for the mean vector and the covariance matrix of a bivariate process. In P.E. Oliveira, M.G. Temido, M. Vichi, and C. Henriques (Eds.), Recent Developments in Modeling and Applications in Statistics, pp. 225-235, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-32419-2\\_23](http://dx.doi.org/10.1007/978-3-642-32419-2_23)

R. Ruiz-Baier, D. Ambrosi, S. Pezzuto, S. Rossi, and A. Quarteroni. Activation models for the numerical simulation of cardiac electromechanical interactions. In G.A. Holzapfel and E. Kuhl (Eds.), Computer Models in Biomechanics: From Nano to Macro, pp. 189-20, Springer, Netherlands, 2013.

URL: [http://dx.doi.org/10.1007/978-94-007-5464-5\\_14](http://dx.doi.org/10.1007/978-94-007-5464-5_14)

C.M. Santos Pereira and A.M. Pires. Robust clustering method for the detection of outliers: using AIC to select the number of clusters. In J. Lita da Silva, F. Caeiro, I. Natário, C.A. Braumann, M.L. Esquível, and J.T. Mexia (Eds.), Advances in Regression, Survival Analysis, Extreme Values, Markov Processes and Other Statistical Applications, pp. 409-415, Springer, Berlin Heidelberg, 2013.

URL: [http://dx.doi.org/10.1007/978-3-642-34904-1\\_43](http://dx.doi.org/10.1007/978-3-642-34904-1_43)

M.F. Teodoro. On the approximation of a small solution from a forward-backward equation. In T. Simos, G. Phisoyios, and C. Tsitouras (Eds.), Proceedings of ICNAAM 2013 - International Conference Numerical Analysis and Applied Mathematics, AIP Conference Proceedings 1558:642-645, American Institute of Physics, New York, 2013.

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#### **A4- Papers in international journals**

R.P. Agarwal, M. Bohner, J.M. Ferreira, and S. Pinelas. Delay difference equations: coexistence of oscillatory and nonoscillatory solutions. Analysis 33:333-348, 2013.

URL: <http://dx.doi.org/10.1524/anly.2013.1226>

C.J.S. Alves and P.R.S. Antunes. The Method of Fundamental Solutions applied to some inverse eigenproblems. *SIAM Journal on Scientific Computing* 35(3):A1689-A1708, 2013.  
URL: <http://dx.doi.org/10.1137/110860380>

P.T. An, N.N. Hai, and T.V. Hoai. Direct multiple shooting method for solving approximate shortest path problems. *Journal of Computational and Applied Mathematics* 244:67-76, 2013.  
WOS:000315066000006  
URL: <http://dx.doi.org/10.1016/j.cam.2012.11.001>

P.T. An and L.H. Trang. An efficient convex hull algorithm for finite point sets in 3D based on the method of orienting curves. *Optimization* 62(7):975-988, 2013.  
WOS:000320914700008  
URL: <http://dx.doi.org/10.1080/02331934.2011.623163>

N. Antunes, G. Jacinto, and A. Pacheco. Probing a M/G/1 queue with general input and service times. *SIGMETRICS Performance Evaluation Review* 41(3):34-36, 2013.  
URL: <http://dx.doi.org/10.1145/2567529.2567540>

A.M. Bianco, G. Boente, and I.M. Rodrigues. Robust test in generalized models with missing responses. *Computational Statistics and Data Analysis* 65:80-87, 2013.  
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URL: <http://dx.doi.org/10.1016/j.csda.2012.05.008>

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URL: <http://dx.doi.org/10.1016/j.jmva.2012.08.008>

M.J. Colaço and C.J.S. Alves. A fast non-intrusive method for estimating spatial thermal contact conductance by means of the reciprocity functional approach and the method of fundamental solutions. *International Journal of Heat and Mass Transfer* 60:653-663, 2013.  
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T. Diogo, J. Ma, and M. Rebelo. Fully discretized collocation methods for a nonlinear singular Volterra integral equation. *Journal of Computational and Applied Mathematics* 247(1):84-101, 2013.  
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URL: <http://dx.doi.org/10.1016/j.cam.2013.01.002>

T. Diogo and G. Vainikko. Applicability of spline collocation to Cordial Volterra equations. *Mathematical Modelling and Analysis* 18(1):1-21, 2013.  
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URL: <http://dx.doi.org/10.3846/13926292.2013.756072>

N. Ford, M.L. Morgado, and M. Rebelo. High order numerical methods for fractional terminal value problems. *Computational Methods in Applied Mathematics* 14(1):55-70, 2013.  
URL: <http://dx.doi.org/10.1515/cmam-2013-0022>

N. Ford, M.L. Morgado, and M. Rebelo. Nonpolynomial collocation approximation of solutions to fractional differential equations. *Fractional Calculus and Applied Analysis* 16(4):874-891, 2013.  
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A.M. Gambaruto, J. Janela, A. Moura, and A. Sequeira. Shear-thinning effects of hemodynamics in patient-specific cerebral aneurysms. *Mathematical Biosciences and Engineering* 10(3):649-665, 2013.

URL: <http://dx.doi.org/10.3934/mbe.2013.10.649>

S.R. Grace, S. Pinelas, and R.P. Agarwal. Oscillation criteria for nth order nonlinear dynamic equations on time-scales. *Journal of the Indian Mathematical Society* 80(1-2):79-85, 2013.

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N.N. Hai and P.T. An. A generalization of Blaschke's convergence theorem in metric spaces. *Journal of Convex Analysis* 4:1013-1024, 2013.

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G. Hastermann, P.M. Lima, M.L. Morgado, and E.B. Weinmüller. Density profile equation with p-Laplacian: analysis and numerical simulation. *Applied Mathematics and Computation* 225:550-561, 2013.

URL: <http://dx.doi.org/10.1016/j.amc.2013.09.066>

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URL: <http://dx.doi.org/10.1093/imanum/drr060>

G.Yu. Kulikov. Nordsieck formulas with advanced global error control mechanisms. *Russian Journal of Numerical Analysis and Mathematical Modelling* 28(4):321-352, 2013.

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M.V. Kulikova and A. Pacheco. Kalman filter sensitivity evaluation with orthogonal and J-orthogonal transformations. *IEEE Transactions on Automatic Control* 58(7):1798-1804, 2013.

URL: <http://dx.doi.org/10.1109/TAC.2012.2231572>

M.V. Kulikova and D.R. Taylor. Stochastic volatility models for exchange rates and their estimation using quasi-maximum-likelihood methods: an application to the South African Rand. *Journal of Applied Statistics* 40(3):495-507, 2013.

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P.M. Lima, S. Nemati, and Y. Ordokhani. Numerical solution of a class of two-dimensional nonlinear Volterra integral equations using Legendre polynomials. *Journal of Computational and Applied Mathematics* 242:53-69, 2013.

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A. Martins, J. Leitão, and C. Amado. Comparative study of three stochastic models for prediction of pipe failures in water supply systems. *Journal of Infrastructure Systems* 19(4):442-450, 2013.

URL: [http://dx.doi.org/10.1061/\(ASCE\)IS.1943-555X.0000154](http://dx.doi.org/10.1061/(ASCE)IS.1943-555X.0000154)

N. Martins and M. Rebelo. A meshfree method for elasticity problems with interfaces. *Applied Mathematics and Computation* 219(22):10732-10745, 2013.  
WOS:000320593400011  
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M.L. Morgado, N.J. Ford, and P.M. Lima. Analysis and numerical methods for fractional differential equations with delay. *Journal of Computational and Applied Mathematics* 252:159-168, 2013.  
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P.F. Ramos, M.C. Morais, A. Pacheco, and W. Schmid. Stochastic ordering in the qualitative assessment of the performance of simultaneous schemes for bivariate processes. *Sequential Analysis* 32(2):214-229, 2013.  
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T. Silva, A. Sequeira, R. Santos, and J. Tiago. Mathematical modeling of atherosclerotic plaque formation coupled with a non-Newtonian model of blood flow. *Conference Papers in Mathematics* Vol. 2013, Article ID 405914, 14 pages, 2013.  
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E. Thandapani, S. Padmavathi, and S. Pinelas. Oscillation criteria for even order nonlinear neutral differential equations with mixed arguments. *Journal in Advances in Mathematics* 1(5):575-589, 2013.  
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#### **A5- Papers in national journals**

#### **A6- Papers in proceedings of international conferences/meetings/workshops**

C.J.S. Alves and N.F.M. Martins. Density results and the method of fundamental solutions for Cauchy data reconstruction. *Advances in Boundary Element and Meshless Techniques XIV* (A. Sellier and M.H. Aliabadi, Eds.), pp. 323-328, EC ltd, 2013.

P.T. An, N.N. Hai, and T.V. Hoai. The role of graph for solving some geometric shortest path problems in 2D and 3D. *Proceedings of the 5th FTRA International Conference on Computer Science and its Applications (CSA-13)*, 18 - 21 December, 2013, Danang, Vietnam. *Lecture Notes in Electrical Engineering (LNEE)*, Springer. In press.

P.T. An, N.N. Hai, T.V. Hoai, and L.H. Trang. On the performance of triangulation-based multiple shooting method for 2D shortest path problems. *International Workshop on Advanced Computing and Applications*, 23-25 October, 2013, Ho Chi Minh City, Vietnam. *LNCS Transactions on Large Scale Data and Knowledge Centered Systems*, Springer. In press.

N. Ford, M.L. Morgado, and M. Rebelo. Nonpolynomial approximation of solutions to delay

fractional differential equations. Proceeding of 13th International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2013), Almeria, Spain, Vol. II 666-675. ISBN: 978-84-616-2723-3.

T. Gortsas, E. J. Sellountos, S.V. Tsinopoulos, and D. Polyzos. Numerical solution of 2D steady-state thermoelastic problems through a new and simple meshless Local Boundary Integral Equation (LBIE) method in combination with the Boundary Element Method (BEM). Advances in Boundary Element & Meshless Techniques XIV, pp. 352-357, Paris, France, July 16-18, 2013.

K.N. Grivas, E.J. Sellountos, and D. Polyzos. A simple meshless LBIE-LRBF for solving transient diffusion problems. Proceedings 10th HSTAM International Congress on Mechanics, Chania, Crete, Greece, May 25-27, 2013.

T. Guerra, J. Tiago, and A. Sequeira. Towards a data assimilation method for blood circulation. Proceedings of the 2013 International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2013), Vol. II, pp. 666-675, Almeria, Spain, June 24-27, 2013. ISBN: 978-84-616-2723-3.

A. João, A. Gambaruto, and A. Sequeira. Computational hemodynamics in cerebral aneurysms. Proceedings of the Congress on Numerical Methods in Engineering 2013, Bilbao, Spain, June 25-28, 2013.

A. João, A. Gambaruto, and A. Sequeira. Sensitivity analysis of hemodynamics to pre-processing medical images: reducing the geometry uncertainty. Proceedings of the 3rd International Conference on Computational and Mathematical Biomedical Engineering (CMBE2013), Hong Kong, December 16-18, 2013.

S. Knoth and M.C. Morais. On ARL-unbiased charts. In S. Knoth, W. Schmid, and R. Sparks (Eds.), Proceedings of the XIth International Workshop on Intelligent Statistical Quality Control, pp. 31-50, Sydney, Australia, August 20-23, 2013.

M.V. Kulikova and G. Yu. Kulikov. Square-root accurate continuous-discrete extended Kalman filter for target tracking. Proceedings of the 52-nd IEEE Conference on Decision and Control, IEEE-CDC 2013, Florence, Italy, 2013, pp. 7785-7790.

A. Mamade, D. Loureiro, D. Covas, S.T. Coelho, and C. Amado (2013). Spatial and temporal forecasting of water consumption at the DMA level using extensive measurements. Proceedings of CCWI2013 - 12th International Conference on Computing and Control for the Water Industry, Perugia, Italy, September 2-4, 2013.

N.F.M Martins. On the identification of perfectly conducting or insulating inclusions from one single boundary measurement. Proceedings of 4th Inverse Problems, Design and Optimization Symposium (O. Fudym, J.-L. Battaglia, G.S. Dulikravich, H.R.B. Orlande, and M.J. Colaço, Eds.) - in CDROM, 2013.

M.C. Morais, P.F. Ramos, and A. Pacheco. Strategies to reduce the probability of a misleading signal. In S. Knoth, W. Schmid, and R. Sparks (Eds.), Proceedings of the XIth International Workshop on Intelligent Statistical Quality Control, pp. 229-244, Sydney, Australia, August 20-23, 2013.

L.F. Morgado, M.L. Morgado, N. Silva, and R. Morais. A mathematical model for electromagnetic energy harvesters. Proceeding of 13th International Conference on Computational and

Mathematical Methods in Science and Engineering (CMMSE 2013), Almeria, Spain, June 26-30, 2013. ISBN: 978-84-616-2723-3.

M.F. Teodoro. Comparing algorithms for approximation of a nonlinear mixed type functional differential equation. Proceeding of 13th International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2013), Almeria, Spain, June 26-30, 2013. ISBN: 978-84-616-2723-3.

M.F. Teodoro, P. Silva, and C. Figueiredo-Pina. Preliminary study of contact modelling the interface between user skin and wearable equipment. Proceeding of 13th International Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2013), Almeria, Spain, June 26-30, 2013. ISBN: 978-84-616-2723-3.

#### **A7- Papers in proceedings of national conferences/meetings/workshops**

A. João, A. Gambaruto, and A. Sequeira. Image Filtering, contrast enhancement and deformation analysis of complex anatomical conduits and microcirculation experiments, Actas do 5º Congresso Nacional de Biomecânica, Espinho, Portugal, February 8-9, 2013.

M.F. Teodoro, P.M. Lima, N.J. Ford, and P.M. Lumb. Aproximação numérica de equações funcionais diferenciais de tipo misto, Actas do Encontro Nacional da SPM, Faro, July 9-11, 2012, Boletim da Sociedade Portuguesa de Matemática (special issue), p. 119-122, 2013.

P.M. Lima, M.F. Teodoro, N.J. Ford, and P.M. Lumb. Modelação matemática da propagação de sinais no sistema nervoso. Actas do Encontro Nacional da SPM, Faro, July 9-11, 2012, Boletim da Sociedade Portuguesa de Matemática (número especial), pp. 123-126, 2013.

M.F. Teodoro, P. Lima, N.J. Ford, and P. M. Lumb. Aproximação numérica de equações funcionais diferenciais do tipo misto Actas do Encontro Nacional da SPM, Faro, Julho de 2012, Boletim da Sociedade Portuguesa de Matemática (special issue), pp. 119-122, 2013.

#### **A8- Papers accepted (but not published) in 2013**

##### **- Papers already published online**

M.V. Bulatov, P.M. Lima, and E.B. Weinmuller. Existence and uniqueness of solutions to weakly singular integral-algebraic and integrodifferential equations. Central European Journal of Mathematics 12:308-321, 2014.

URL: <http://dx.doi.org/10.2478/s11533-013-0334-5>

G.E. Chatzarakis, S. Pinelas, and I.P. Stavroulakis. Oscillations of difference equations with several deviated arguments. Aequationes Mathematicae, Online November 2013.

URL: <http://dx.doi.org/10.1007/s00010-013-0238-2>

T. Guerra, J. Tiago, and A. Sequeira. On the optimal control of a class of non-Newtonian fluids. Annali dell'Universita di Ferrara. Online December 2013.

URL: <http://dx.doi.org/10.1007/s11565-013-0195-7>

G.Yu. Kulikov and M.V. Kulikova. Accurate numerical implementation of the continuous-discrete extended Kalman filter. IEEE Transactions on Automatic Control 59(1):273-279, 2014.

URL: <http://dx.doi.org/10.1109/TAC.2013.2272136>

G.Yu. Kulikov, P.M. Lima, and M.L. Morgado. Analysis and numerical approximation of singular

boundary value problems with p-Laplacian in fluid mechanics. *Journal of Computational and Applied Mathematics*. Online October 2013.

URL: <http://dx.doi.org/10.1016/j.cam.2013.09.071>

M.V. Kulikova and G.Yu. Kulikov. Adaptive ODE solvers in extended Kalman filtering algorithms. *Journal of Computational and Applied Mathematics*. Online October 2013.

URL: <http://dx.doi.org/10.1016/j.cam.2013.09.064>

S. Rossi, T. Lassila, R. Ruiz-Baier, A. Sequeira, and A. Quarteroni. Thermodynamically consistent orthotropic activation model capturing ventricular systolic wall thickening in cardiac electromechanics. *European Journal of Mechanics – A/Solids*. Online October 2013.

URL: <http://dx.doi.org/10.1016/j.euromechsol.2013.10.009>

R. Ruiz-Baier, A. Gizzi, S. Rossi, C. Cherubini, A. Laadhari, S. Filippi, and A. Quarteroni. Mathematical modeling of active contraction in isolated cardiomyocytes. *Mathematical Medicine and Biology*. Online June 2013.

URL: <http://dx.doi.org/10.1093/imammb/dqt009>

A.L. Silvestre and T. Takahashi. The motion of a fluid-rigid ball system at the zero limit of the rigid ball radius. *Arch. Rational Mech. Anal.*, Online December 2013.

URL: <http://dx.doi.org/10.1007/s00205-013-0696-7>

R. Weiner and G.Yu. Kulikov. Local and global error estimation and control within explicit two-step peer triples. *Journal of Computational and Applied Mathematics*. Online August 2013.

URL: <http://dx.doi.org/10.1016/j.cam.2013.07.041>

**- Other papers accepted for publication:**

C. Amado, A. Bianco, G. Boente, and A.M. Pires. Robust bootstrap: an alternative to bootstrapping robust estimators. *REVSTAT*. (In press).

P.T. An, N.N. Hai, T.V. Hoai, and L.H. Trang. On the performance of triangulation-based multiple shooting method for 2D shortest path problems. In *Transactions on Large Scale Data and Knowledge Centered Systems, Lecture Notes in Computer Science*, Springer. (In press).

A. Fasano, A. Sequeira, and T. Bodnár. Mathematical models for blood coagulation. In T. Bodnár, G.P. Galdi, and S. Necasová (Eds.), *Fluid-Structure Interaction and Biomedical Applications*, Birkhäuser Publishing Ltd. (In press).

D. Harvey, T.D. Kitching, J. Noah-Vanhouck, B. Hamner, T. Salimans, and A.M. Pires. Observing dark worlds: a crowdsourcing experiment for dark matter mapping. *Astronomy and Computing*. (In press).

S. Knoth and M.C. Morais. On ARL-unbiased control charts. *Frontiers in Statistical Quality Control* 11. (In press).

R. Koplataдзе and S. Pinelas. Oscillation criteria for first order linear difference equations with several delay arguments. *Nonlinear Oscillations*. (In press).

G.Yu. Kulikov and R. Weiner. Efficient global error control in numerical integration of differential equations and variable-stepsize optimal interpolating peer methods. In Russian: *Zh. Vychisl. Mat. Mat. Fiz.* In English: *Computational Mathematics and Mathematical Physics*. (In press).



M.V. Kulikova and J.V. Tsyganova. A general approach for constructing parametric identification algorithms in the class of square-root filters with orthogonal and J-orthogonal transformations. *Automation and Remote Control*. (In press).

N.F.M. Martins and D. Soares. Localization of immersed obstacles from boundary measurements. *Inverse Problems in Science and Engineering*. (In press).

M.C. Morais, P.F. Ramos, A. Pacheco, and W. Schmid. On the impact of falsely assuming i.i.d. output in the probability of misleading signals. *REVSTAT*. (In press).

A. Sequeira and T. Bodnár. Blood coagulation simulations using a non-linear viscoelastic flow model. *Mathematical Modelling of Natural Phenomena*. (In press).

R. Sousa, A. Nunes, T. Meira, C. Fonseca, R. Loureiro, A. Vieira, P. Marques, V. Fernandes, M. Anjos, O. Carreira, A.M. Pires, J. Fonseca, and J. Freitas. Carcinoembryonic Antigen Variation secondary to colonoscopy and its preparation. *Arquivos de Gastroenterologia*.

E. Thandapani, S. Padmavathi, and S. Pinelas. Oscillation results for odd-order nonlinear neutral differential equations of mixed type. *Dynamic Systems and Applications*. (In press).

E. Thandapani, S. Padmavathi, and S. Pinelas. Oscillation criteria for even-order nonlinear neutral differential equations of mixed type. *Bulletin of Mathematical Analysis and Applications*. (In press).

#### **A9- Papers submitted and under review**

N. Antunes and V. Pipiras. Estimation of flow duration distribution from sampled traffic under flow model. *IEEE/ACM Transactions on Networking*.

F. Bernal, J.A. Acebrón, and I. Anjam. A stochastic algorithm based on fast marching for automatic capacitance extraction in Non-Manhattan geometries.

A.M. Bianco, G. Boente, and I.M. Rodrigues. Conditional tests for elliptical symmetry using robust estimators.

J.A. Branco and A.M. Pires. A robust principal component analysis that can handle high dimensional data.

J.M. Buchot, J.P. Raymond, and J. Tiago. Coupling estimation and control for a two dimensional Burgers type equation.

G.E. Chatzarakis, J. Manojlovic, S. Pinelas, and I.P. Stavroulakis. Oscillation criteria of difference equations with several deviating arguments.

N.J. Ford, P.M. Lima, and P.M. Lumb. Computational methods for a mathematical model of propagation of nerve impulses in myelinated axons.

N.J. Ford, M.L. Morgado, and M. Rebelo. A nonpolynomial collocation method for fractional terminal value problems.

J.M. Garcia, M.F. Teodoro, R. Cerdeira, L.M.R. Coelho, and M.G. Carvalho. A methodology to estimate PM10 outdoor urban concentrations using GLM.

T. Guerra, A. Sequeira, and J. Tiago. Optimal control in blood flow simulations.

G. Jacinto, N. Antunes, and A. Pacheco. Hop count distribution in multihop MANETs.

G.Yu. Kulikov and M.V. Kulikova. A comparative study of nonlinear Kalman filtering algorithms for radar tracking.

G.Yu. Kulikov and M.V. Kulikova. High-order accurate continuous-discrete extended Kalman filter for chemical engineering.

G.Yu. Kulikov and M.V. Kulikova. A note on practical implementation of extended Kalman filtering in chemical systems.

M.V. Kulikova and G.Yu. Kulikov. A comparative analysis of nonlinear filtering algorithms for target tracking.

M.V. Kulikova and J.V. Tsyganova. Constructing numerically stable array square-root Kalman filter-based algorithms for the maximum likelihood estimation.

M.V. Kulikova and J.V. Tsyganova. Score and Fisher information matrix computation in array square-root Kalman filtering algorithms. *Mathematics and Computers in Simulation*.

V.M. Lourenço and A.M. Pires. M-regression, false discovery rates and outlier detection with application to genetic association studies.

S. Mancini, F. Bernal, and J.A. Acebrón. An efficient algorithm for accelerating Monte Carlo approximations to the solution of Boundary Value Problems.

N.F.M Martins. On the reconstruction of heat and acoustic sources from boundary measurements.

N.F.M Martins. Detecting the localization of elastic inclusions and Lamé coefficients.

M.C. Morais, P.F. Ramos, and A. Pacheco. Strategies to reduce the probability of a misleading signal.

M.C. Morais, Y. Okhrin, and W. Schmid. Quality surveillance with EWMA control charts based on exact control limits.

M.L. Morgado, L.F. Morgado, N. Silva, and R. Morais. Mathematical modeling of cylindrical electromagnetic vibration energy harvesters.

C. Pascoal, M.R. Oliveira, R. Valadas, and A. Pacheco. Evaluation of Feature Selection Methods based on Mutual Information.

A.M. Pires and J.A. Branco. High dimensionality: the latest challenge to data analysis.

K. Ravi, J.M. Rassias, S. Pinelas, and R. Jamuna. A fixed point approach to the stability of a quadratic quartic functional equation in Paranormed spaces.

K. Ravi, J.M. Rassias, S. Pinelas, and P. Narasimman. The stability of a generalized Radical Reciprocal Quadratic Functional Equation in Felbin's Space.

S.K. Samanta, M.L. Chaudhry, A. Pacheco, and U.C. Gupta. Analytic and computational analysis of the discrete-time GI/D-MSP/1 queue using roots.

C.M. Santos-Pereira and A.M. Pires. The use of clustering and robust estimators to detect multivariate outliers.

J. Tiago. Numerical simulations for the stabilization and estimation problem of a semilinear partial differential equation.

J. Tiago, A. Gambaruto, and A. Sequeira. Boundary control in blood flow simulations: dealing with uncertainty.

P. Tricerri, L. Dedé, A. Quarteroni, and A. Sequeira. Numerical validation of isotropic and transversely isotropic constitutive models for healthy and unhealthy cerebral arterial tissues. URL: <http://mathicse.epfl.ch/op/edit/page-103902.html> (Report 39.2013)

## **B - Communications with no associated publication**

### **B1- Communications in international conferences (without associated paper)**

P.T. An, N.N. Hai, T.V. Hoai, and L.H. Trang. On the performance of triangulation-based multiple shooting method for 2D shortest path problems. The International Workshop on Advanced Computing and Applications, Ho Chi Minh City, Vietnam, October 2013.

L. Bento, A. Ribeiro, M.F. Teodoro, C. Pina, and P. Silva. Diferencias de género en la percepción en à dolor en compresión. SIBB 2013 - XXXVI Congreso de la Sociedad Biomédica Ibérica de Biomecânica e Biomateriales, Granada, Spain, October 25-27, 2013.

T. Diogo. Numerical solution of cordial Volterra integral equations. International Conference on Mathematical Modelling and Analysis (MMA2013), Tartu, Estonia, May 27-30, 2013.

M.T. Diogo, P.M. Lima, and M.S. Rebelo. Numerical solution of a singular Volterra integral equation using extrapolation methods. International Conference on Mathematical Modelling and Analysis (MMA2013), Tartu, Estonia, May 27-30, 2013.

N.J. Ford, M.L. Morgado, and M. Rebelo. High order numerical methods for fractional terminal value problems. The Cape Verde International Days on Mathematics, Praia, Cape Verde, April 22-25, 2013.

D.T. Giang, P.T. An, and L.H. Trang. Exact solutions for minimizing a sum of Euclidean norms. 4th International Conference on Continuous Optimization (ICCOPT-2013), Universidade Nova de Lisboa, Caparica Campus, Lisboa, Portugal, July 27 - August 1, 2013.

D.T. Giang and P.T. An. On computing convex hulls of a finite set of points on a paraboloid. International Conference on Advanced Computing and Applications (ACOMP-2013), Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam, October 23-25, 2013.

D. Kressner and F. Macedo. A low-rank tensor method for large-scale Markov Chains. Preconditioning of Iterative Methods, Prague, Check Republic, July 1-5, 2013.

D. Kressner and F. Macedo. A low-rank tensor method for large-scale Markov Chains. European

- Conference on Numerical Mathematics and Advanced Applications, Lausanne, Switzerland, August 26-30, 2013.
- G.Yu. Kulikov, P.M. Lima, and M.L. Morgado. Analysis and numerical approximation of the generalized density profile equation. International Conference on Scientific Computation and Differential Equations (SCICADE 2013), Valladolid, Spain, September 16-20, 2013.
- G.Yu. Kulikov and M.V. Kulikova. Adaptive ODE solvers in the Continuous-Discrete Extended Kalman Filtering Method I: numerical tests and comparison. International Conference on Scientific Computation and Differential Equations (SciCADE'13), Valladolid, Spain, September 15-20, 2013.
- M.V. Kulikova and G.Yu. Kulikov. Adaptive ODE Solvers in the Continuous-Discrete Extended Kalman Filtering Method II: square-root implementation and application to target tracking. International Conference on Scientific Computation and Differential Equations (SciCADE'13), Valladolid, Spain, September 15-20, 2013.
- N. Martins and M. Rebelo. A meshfree method for elasticity problems with interfaces. 25th Biennial Conference on Numerical Analysis (NaCONF), University of Strathclyde, Glasgow, UK, June 25-28, 2013.
- M.R. Oliveira, A. Subtil, and L. Gonçalves. Confidence intervals and sample size calculations for sensitivity and specificity. 34th Annual Conference of the International Society for Clinical Biostatistics (ISCB34), Munich, Germany, August 25-29, 2013.
- J. Pavlova, A. Fasano, J. Janela, and A. Sequeira. Mathematical modelling of thrombus growth: biochemical network reduction and blood slip effects. MPF 2013 - V International Symposium on Modelling of Physiological Flows, Chia Laguna, Sardinia Island, Italy, June 11–14, 2013.
- J. Pavlova, A. Fasano, J. Janela, and A. Sequeira. Mathematical modeling and simulations of thrombus evolution using a simplified model. V International Conference on Computational Bioengineering, Leuven, Belgium, September 11-13, 2013.
- P.F. Ramos, M.C. Morais, and A. Pacheco. Strategies to reduce the probability of a misleading signal. ERCIM - the European Research Consortium for Informatics and Mathematics, London, UK, December 2013.
- S. Seyed-Allaei, T. Diogo, and M. Rebelo. On the Jacobi-collocation method for some nonlinear singular Volterra integral equations. 25th Biennial Conference on Numerical Analysis (NaCONF), University of Strathclyde, Glasgow, UK, June 25-28, 2013.
- M.F. Teodoro. Aproximação numérica de uma equação que modela a condução nervosa em axónios mielinados. MMNSEA13 - Mathematical Modelling and Numerical Simulations for Engineering Applications, Escola de Ciências da Universidade do Minho, Campus de Azurém, Guimarães, Portugal, September 13, 2013.
- J. Tiago, T. Guerra, and A. Sequeira. Numerical simulations for the optimal control of non-Newtonian fluids in blood flow models. MPF 2013 - V International Symposium on Modelling of Physiological Flows, Chia Laguna, Italy, June 11-14, 2013.
- L.H. Trang, M. Diehl, P.T. An, and A. Kozma. A sequential convex programming algorithm for minimizing a sum of Euclidean norms with non-convex constraints. The Fourth International Conference on Continuous Optimization, Lisbon, Portugal, July 27 - August 1, 2013.

P. Tricerri, L. Dedé, A. Quarteroni, and A. Sequeira. Mechanical characterization and numerical assessment of cerebral arterial tissues. MPF 2013 - V International Symposium on Modelling of Physiological Flows, Chia Laguna, Sardinia Island, Italy, June 11–14, 2013.

P. Tricerri, L. Dedé, A. Quarteroni, and A. Sequeira. Fluid-Structure Interaction simulation of cerebral arterial tissue using anisotropic model for the arterial wall. ENUMATH 2013 - The European Numerical Mathematics and Advanced Applications, EPFL, Lausanne, Switzerland, August 26-30, 2013.

## **B2- Communications in national conferences (without associated paper)**

A.M. Bianco, G. Boente, and I.M. Rodrigues. Robust test in generalized models with missing responses. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

J.A. Branco. 109 anos de Análise Factorial. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

E. Carrasquinha, A.M. Pires, and C. Amado. Approximation of the correlation matrix to the family of Toeplitz matrices - application to the reconstruction of coloured images. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

M. Guerra, C. Oliveira, and C. Nunes. Value of firm with exit option. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

F. Macedo, D. Kressner, and A. Pacheco. A low-rank tensor method for large-scale Markov Chains. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

R. Pimentel and A. Pacheco. H-index: a stochastic approach. XI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

A. Rocha, M. Souto de Miranda, and J.A. Branco. Estimaco robusta de equaces simultneas: o mtodo dos momentos generalizados com informaco limitada. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

M. Souto de Miranda, M. Silva, and C. Amado. Identificaco de variveis ambientais relevantes para o Site Index do Eucalyptus Globulus. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

A. Subtil, L. Gonalves, and P.Z. Bermudez. Adequaco de modelos de classes latentes a planos experimentais relevantes no contexto biomdico. I Portuguese Meeting of Biometry and I Portuguese Galician Meeting of Biometry, Braga, Portugal, July 14-16, 2013.

A. Subtil, M.R.Oliveira, and L.Gonalves. Clculo do tamanho da amostra para estimar a sensibilidade e a especificidade. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

M.F. Teodoro, P. Silva, and C. Pina. Estudo do nvel de conforto na interaco de contacto entre a pele e equipamentos mecnicos. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

### **B3- Invited lectures**

C.J.S. Alves and M.J. Colaço. Inverse crack identification in heat contact problems. Inverse Problems: Scattering, Tomography and Identification Problems Conference, Bad Herrenalb, Germany, April 8-11, 2013.

N. Antunes. Estimation of flow duration from sample traffic. Session: Statistics of the Internet, MECC 2013 - International Conference and Advanced School Planet Earth, Mathematics of Energy and Climate Change, Lisbon, Portugal, March 21–28, 2013.

J.A. Branco. Statistics in the age of intensive data production. Jornadas de Primavera de MAEG, ISEG, Universidade Técnica de Lisboa, Portugal, April 23, 2013.

A. Pacheco. Há filas de espera sem stress! Mito ou realidade? Escola de Verão de Matemática, Estatística e Computação, Instituto Superior Técnico, Universidade Técnica de Lisboa, Lisboa, Portugal, July 22-24, 2013.

C. Pascoal, M.R. Oliveira, R. Valadas, P. Filzmoser, P. Salvador, and A. Pacheco. Robust feature selection and robust PCA for Internet traffic anomaly detection. MECC 2013 - International Conference and Advanced School Planet Earth, Mathematics of Energy and Climate Change, Lisbon, Portugal, March 21-28, 2013.

A.M. Pires. A estatística e a genética: de Mendel à genómica. Escola de Inverno de Matemática, Instituto Superior Técnico, Universidade Técnica de Lisboa, Lisboa, Portugal, February 4-6, 2013.

A.M. Pires. Data analysis in the large data era. XX Classification and Data Analysis Journeys (JOCLAD2013), Guimarães, Portugal, April 11-13, 2013.

A.M. Pires and J.A. Branco. Random p-values and the Mendel-Fisher controversy. 7th Workshop on Statistics, Mathematics and Computation (WSMC7), Tomar, Portugal, May 28-29, 2013.

A. Sequeira. New advances in blood coagulation modeling. Congrès Internationale du Laboratoire Euro-Maghrébin de Mathématiques et de leurs Interactions, Rabat, Morocco, February 12-15, 2013.

A. Sequeira. Recent trends on the mathematical modeling of blood coagulation. International Conference on Mathematical Fluid Dynamics on the occasion of Prof. Y. Shibata's 60th birthday, Nara, Japan, March 5-9, 2013.

A. Sequeira. Coupling 3D and 1D fluid-structure interaction models for blood flow simulations. Workshop on the Navier-Stokes Equations, Institute of Mathematics, Technical University of Aachen, Germany, May 21-24, 2013.

A. Sequeira. Shear-thinning effects of hemodynamics in patient-specific cerebral aneurysms. Numerical Mathematics and Applications to Some Challenging Problems – NUMACH, ABENGOA Research and Loyola University, Sevilla, Spain, June 24-26, 2013.

A. Sequeira. Modelos matemáticos em medicina, Mat-Oeste 2013, Escola Superior de Tecnologia e Gestão, Instituto Politécnico de Leiria, Portugal, July 11, 2013.

A. Sequeira. Mathematical and computational modeling of the blood coagulation dynamics. 29º Colóquio Brasileiro de Matemática, Sessão Temática: Biologia Matemática – Aplicações Médicas, IMPA, Rio de Janeiro, Brasil, July 29 - August 3, 2013.

A. Sequeira. New advances in the mathematical modeling of thrombus growth. International Conference on Mathematical Hydrodynamics and Parabolic Equations, in honor of Vsevolod SOLLONIKOV on the occasion of his 80th birthday, V. A. Steklov Mathematical Institute, St. Petersburg, Russia, September 11-14, 2013.

A. Sequeira. Mathematical modeling of thrombus growth: biochemical network reduction and blood slip effects. JANO'10, 10ème Édition des Journées d'Analyse Numérique et d'Optimisation, Essaouira, Morocco, October 30 - November 2, 2013.

A. Sequeira. A Matemática do Sistema Cardiovascular. A Matemática do Planeta Terra ... Na UTAD, UTAD, Portugal, November 18, 2013.

A.L. Silvestre. The motion of a fluid-rigid ball system at the zero limit of the rigid ball radius. Simpósio de Equações Diferenciais Parciais, Universidade Federal do Paraná, Brazil, February 2013.

A.L. Silvestre. The motion of a fluid-rigid ball system at the zero limit of the rigid ball radius. Mathematical Aspects of Fluid-Structure Interactions, Institut Henri Poincaré, Paris, France, November 4-8, 2013.

A. Subtil, M.R.Oliveira, P.Z. Bermudez, and L.Gonçalves. Análise de dados categorizados no contexto de testes diagnóstico. XXI Annual Meeting of the Portuguese Statistical Society, Aveiro, Portugal, November 29 - December 2, 2013.

A. Subtil, L. Gonçalves, P.Z. Bermudez, and M.R. Oliveira. Using latent class models to evaluate the performance of diagnostic tests in the absence of a gold standard. Probability and Statistics Seminar II, Phd Program in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa, April 18, 2013.

M.F. Teodoro. On the approximation of a small solution from a forward-backward equation. ICNAAM 2013 - International Conference on Numerical Analysis and Applied Mathematics, Rhodes, Greece, September 21- 27, 2013.

#### **B4- External seminars**

C. Amado. Métodos robustos para ANOVA a um e a dois Fatores. Seminário do CEAUL, Faculdade de Ciências, Universidade de Lisboa, Portugal, November 20, 2013.

C. Nunes. Value of a firm with exit option: a new approach. Norwegian University of Science and Technology, Trondheim, Norway, December 2013.

J. Pavlova. Reduced mathematical model of blood clot evolution. Department of Mathematics and Informatics, University of Vilnius, Vilnius, Lithuania, August 13, 2013.

M. Rebelo. An overview of my recent work: numerical methods for differential equations of fractional order and a meshfree method for Brinkmann systems. Analysis Seminars, CMA FCT-UNL, November 2013.

A. Sequeira. 3D fluid-structure interaction problems in hemodynamics. Seminário de Análise, CMA/FCT, FCT/UNL, Portugal, December 11, 2013.

J. Tiago. Optimal control applications in blood flow simulations. Department of Mathematics, Universidade de Coimbra, October 30, 2013.

### **B5- Other external communications (short courses, etc.)**

C. Amado. Ver para além da terceira dimensão (2h course). Escola de Verão de Matemática, Estatística e Computação, Instituto Superior Técnico, Universidade Técnica de Lisboa, July 22-24, 2013.

C. Amado. Métodos de reamostragem - o bootstrap (6h course). Jornadas de Classificação e Análise de Dados, Universidade do Minho, Campus de Azurém, Guimarães, Portugal, April 11, 2013.

T. Diogo. Modelação matemática e simulação numérica dum teste de gravidez. Minicourse at Escola de Inverno de Matemática, Instituto Superior Técnico, Universidade Técnica de Lisboa, Lisboa, Portugal, February 4-6, 2013.

C. Nunes. Time Series in Mathematical Finance (6 hours course, with final exam). ECMI Summer School 2013, Universidad Carlos III, Madrid, Spain, July 19-29, 2013.

J. Pavlova, A. Fasano, J. Janela, and A. Sequeira. Mathematical modeling and numerical simulations of a complex reduced model for blood coagulation. Mathematical Approaches to Complex Fluids - a Two Week Summer School, Isaac Newton Institute, UK, July 22 - August 2, 2013.

K.N. Grivas, M.G. Vavva, E.J. Sellountos, D. Polyzos, and D.I. Fotiadis. A meshless Local Boundary Integral Equation (LBIE) method for prediction of cell non-linear diffusion during bone healing. ESB 2013 - European Society of Biomechanics, Patras, Greece, August 25-28, 2013

### **C- Reports**

A. Araujo, J. Correia, P. Freitas, M. Grinfeld, J. Pavlova and D. Pinheiro. Modelling percolation and fractal structure in aerogels. The 92nd European Study Group with Industry 2013, ISEC - Coimbra Institute of Engineering, Coimbra, Portugal.

M. Guerra, C. Oliveira, and C. Nunes. New approach to derive the value function of a firm with exit option. Available at: <http://arxiv.org/abs/1309.5285>

A. Subtil. O modelo de classes latentes na avaliação do desempenho de testes de diagnóstico. PhD Program in Statistics and Operations Research – Report, Faculdade de Ciências, Universidade de Lisboa, 2013.

### **D- Organization of conferences/workshops/short courses**

11th Workshop on Optimization and Scientific Computing. Ba Vi, Vietnam, April 24-27, 2013. (P.T. An: Member of the Organizing Committee).

ASMTA 2013 - Twentieth International Conference on Analytical & Stochastic Modelling Techniques & Applications, Ghent, Belgium, July 8-10, 2013. (A.Pacheco: Member of the Technical Program Committee).



DGS II 2013 – International Conference and Advanced School Planet Earth, Dynamics, Games and Science II, Calouste Gulbenkian Foundation, Lisbon, Portugal, August 28 - September 6, 2013. (C.Nunes: Organizer of the session “Interest Rate, Credit Risk and Investment Models”).

IEEE 9th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob'2013), Lyon, France, October 7-9, 2013. (N. Antunes: Member of the Technical Program Committee).

MECC 2013 - International Conference and Advanced School Planet Earth, Mathematics of Energy and Climate Change, Lisbon, Portugal, March 21–28, 2013. (A. Pacheco: Organizer of the session “Mathematics of the Internet”).

International Workshop on Advanced Computing and Applications. Ho Chi Minh City, Vietnam, October 23-25, 2013. (P.T. An: Member of the Scientific Committee).

## **E- Advanced education**

### **E1- PhD tesis completed (authored or advised)**

A. Freitas. Testes de Hipóteses para Comparar Probabilidades de Recombinação (Statistical Tests to Compare Recombination Probabilities). PhD Thesis in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade Técnica de Lisboa, July 2013. In Portuguese. Supervised by: A.M. Pires.

P.F. Ramos. Performance Analysis of Simultaneous Control Schemes for the Process Mean (Vector) and (Co)Variance (Matrix). PhD Thesis in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa, July 2013. Supervised by: M.C. Morais and A. Pacheco.

### **E2- MSc tesis completed (authored or advised)**

R. Basto. Desenvolvimento de um Sistema de Diagnóstico para o Motor LARZAC 04C20 (AJ). MSc Thesis in Aeronautical Engineering, Academia da Força Aérea, Sintra, January 2013. Supervised by; T. Borges and M.F. Teodoro.

F. Boaventura. GPS Static Relative Positioning: Long Baselines Processing with LGO. MSc Thesis, Nottingham Geospatial Institute, University of Nottingham, September 2013. Tutorial supervised by: M.F. Teodoro.

Marco Henriques. Planning and Control of Robotic Anthropomorphic Hands using Synergies. MSc Thesis in Mathematics and Applications, Instituto Superior Técnico, Universidade Técnica de Lisboa, June 2013. Supervised by: C. Amado and A. Bernardino (ISR). In Portuguese.

Tiago Matos. Statistical Methods for Classification of Musical Genres. MSc Thesis in Mathematics and Applications, Instituto Superior Técnico, Universidade Técnica de Lisboa, July 2013. Supervised by: C. Amado. In Portuguese.

João Neves. The Effect of an Imperfect Ground-Truth in the Evaluation of the Performance of Classifiers. MSc Thesis in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa, November 2013. Supervised by: M.R. Oliveira. In Portuguese.

Marta Pinto. Credit Rating. A Multivariate Ordering Question? MSc Thesis in Mathematics and

Applications, Instituto Superior Técnico, Universidade Técnica de Lisboa, June 2013. Supervised by: C. Amado and A. M. Pires. In Portuguese.

Pedro Santos. Decision support tools for urban drainage system management. MSc Thesis in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa, November 2013. Supervised by: C. Amado and J. P. Leitão (LNEC/Eawag).

N.H. Van. Spines for constructing convex hulls. MSc Thesis in Mathematics, Institute of Mathematics, Hanoi, Vietnam, October 2013. In Vietnamese. Supervised by: P.T. An.

H.N. Vinh. Parallel cut slides for shortest paths on a convex polytope. MSc Thesis in Mathematics, Institute of Mathematics, Hanoi, Vietnam, October 2013. In Vietnamese. Supervised by: P.T. An.

### **E3- Other advanced education completed (authored or advised)**

R. Bento and A. Ribeiro. Diferenças de Géneros na Percepção à Dor em 80 indivíduos da Escola Superior de Tecnologia de Setúbal. Diploma Thesis in Biomedical Engineering, Instituto Politécnico de Setúbal, Setúbal, July 2013. Supervised by: C. Pina, P. Silva, and M.F. Teodoro. In Portuguese.

M. Vilela. Symbolic Principal Component Analysis. Diploma Thesis in Applied Mathematics and Computation, Instituto Superior Técnico, Universidade de Lisboa,, July 2013. Supervised by: M.R. Oliveira. In Portuguese.

### **E4- PhD tesis in progress or under evaluation (authored or advised)**

E. Carrasquinha. Properties and Performance of Transformed Mathematical Statistics in Image Processing and Signals. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Amado and A.M. Pires.

T.M. Cotovio Guerra. Optimal Control of Non-Newtonian Fluids. PhD in Mathematics, FCT/UNL, Universidade de Lisboa. Submitted for discussion. Supervisor: A. Sequeira and L. Trabucho.

R. El Adawy. The Level Crossing Ordering and Related Stochastic Orders. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: António Pacheco.

F. Encarnação. \*\*\*\*\*. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervised by: M.R. Oliveira, P. Filzmoser, and R. Valadas.

L. Ferrás. Numerical methods for fractional differential equations. PhD in Mathematics, University of Chester. In progress. Supervisors: N.J. Ford and M.L. Morgado.

A. Finamore do Couto. Selection Methods based on Mutual Information. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervised by: M.R. Oliveira and A. Pacheco.

T.A. Freire da Silva. Analysis and Numerical Simulation of Fluid-Structure Problems, Associated to the Processes of Inflammation and Blood Clotting. PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: A. Sequeira and R. Santos.

- J. Garcia. A Relação Entre a Poluição Atmosférica no Barreiro e as Doenças Respiratórias. PhD in Mechanical Engineering, Instituto Superior Técnico, Universidade de Lisboa. In progress. Tutorial Advisor: M.F. Teodoro.
- D.T. Giang. Numerical Methods for Geodesic Problems in Computational Geometry. PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: P. T. An.
- A.S.S. Herdade. Experimental and Computacional Study of Blood Cells – Implications on the Inflammatory Response. Ph.D in Biochemistry, Faculdade de Medicina, Universidade de Lisboa. In progress. Supervisor: A. Sequeira.
- A.R.J. João. Medical imaging for Improved Accuracy in Clinical Applications. Ph.D in Computational Engineering, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: A. Sequeira and A. Gambaruto.
- F. Macedo. Numerical Methods for Large Stochastic Matrices. PhD in Statistics and Stochastic Processes, IST-EPFL Initiative on Computational and Stochastic Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: D. Kressner and A. Pacheco.
- P. Manholi. Estudo de equações do tipo Kelvin-Voigt com retardo. Programa de Pós-Graduação em Matemática Aplicada - UFPR, Universidade Federal do Paraná, Curitiba, Brazil. Submitted for discussion on February 26, 2014. Supervisors: P. Damázio and A.L. Silvestre.
- C. Oliveira. Stochastic optimization in Real Options. PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Nunes and M. Guerra.
- C. Pascoal. Contributions to Variable Selection and Robust Anomaly Detection in Telecommunications. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. Submitted for discussion. Supervisors: M.R. Oliveira and A. Pacheco.
- J. Pavlova. Numerical Simulation of Free-Boundary Flows of Complex Non-Newtonian Fluids. Applications to Hemodynamics. PhD in Computational Engineering, UT Austin-Portugal Program, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: A. Sequeira.
- R. Pimentel. Processes with Jumps in Finance. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Nunes and R. Gaspar.
- T. Risso. O Método da Distância Mínima na Derivação Simples de Estimadores Robustos. PhD in Statistics and Stochastic Processes, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Amado and A.M. Pires.
- S. Rossi. Anisotropic Modeling of Cardiac Mechanical Activation. PhD in Mathematics, IST-EPFL Initiative on Computational and Stochastic Mathematics, Instituto Superior Técnico, Universidade de Lisboa. Submitted for discussion. Supervisors: A. Sequeira and A. Quarteroni.
- S. Seyed-Allaei. Analytical and Numerical Study of Some Volterra Integral Equations with Singularities. PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: T. Diogo.
- A. Subtil. Metodologias Estatísticas na Avaliação de Testes de Diagnóstico. PhD in Statistics and Operations Research, Faculdade de Ciências, Universidade de Lisboa. In progress. Supervisors: L.

Gonçalves and P. Bermudez.

L.H. Trang. Some Numerical Optimization Methods in Computational Geometry. PhD in Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: P. T. An and M. Diehl.

P. Tricerri. Mathematical and Numerical Modeling of Cerebral Aneurysms Progression. PhD in Mathematics, IST-EPFL Initiative on Computational and Stochastic Mathematics, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: A. Sequeira and A. Quarteroni.

I.R.F. Velho. Study of Cerebral Aneurysms Through Experimental Bio-Markers and Computational Hemodynamics. PhD in Computational Engineering, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: A. Sequeira.

#### **E5- MSc thesis in progress or under evaluation (authored or advised)**

P. Jesus. Technology adoption with investment in R&D centers. MSc thesis, IST/UTL, Lisbon. Supervisors: C. Nunes and V. Hagspiel.

I. Leitão. Optimal capacity choice. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Nunes and V. Hagspiel.

A. Maia. Structural Equation Modeling for Examining Health Clinic Client's Satisfaction. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Amado and C. Monteiro.

V. Martins. Extensions on the model of optimal technology adoption. MSc thesis, IST/UTL, Lisbon. Supervisors: C. Nunes and V. Hagspiel.

S.R.B.B. Paulino. Controlo de Qualidade e Processos Inteiros Autoregressivos: Uma Aplicação à Indústria, Seguros e Controlo de Tráfego. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisor: M.C. Morais.

H. Pinto. Investment Decisions in the Electricity Market. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Nunes and D. Schwarz.

T. Ralha. Univariate and Multivariate Quality Control Charts and the R Statistical Package. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: M.C. Morais and M.R. de Oliveira.

L. Rodrigues. Modeling of wave energy absorption. MSc thesis, IST/UTL, Lisbon. In progress. Supervisors: A. L. Silvestre and A. Falcão.

D. Silva. Generalized Temporal Pattern Mining. MSc in Mathematics and Applications, Instituto Superior Técnico, Universidade de Lisboa. In progress. Supervisors: C. Amado and C. Antunes.

N.H. Van. Spines for constructing convex hulls. Institute of Mathematics, Hanoi. In progress. Supervisor: P.T. An.

H.N. Vinh. Parallel cut slides for shortest paths on a convex polytope. MSc thesis, Vinh University. In progress. Supervisor: P.T. An.

#### **E6- Other advanced education in progress or under evaluation (authored or advised)**

## **F- Research Projects (Participation and Leadership)**

- Analysis and numerical methods for direct and inverse problems in Mathematical Mechanics, PTDC/MAT/105475/2008, 2010/01/01-2012/12/31. Leader: Ana L. Silvestre. Participants: Carlos Alves, Nuno Martins, Pedro Antunes, Svilen Valtchev. CEMAT's budget: 34500 Euros. CEMAT's 2011 budget: 13200 Euros. CEMAT's 2012 budget: 7800 Euros.

- Analytical and Computational Methods for Singular Integral Equations, project PTDC/MAT/101867/2008, 2010/01/01-2013/06/31. Coordinator: T. Diogo. Members: M. Rebelo, P. Lima. Total budget: 51800 Euros (Research grants: 23000 Euros)

- Mathematical and Computational Modeling of Human Physiology - PHYSIOMATH – EXCL/MAT-NAN/0114/2012, 15/05/2013-14/05/2016. Leader: A. Sequeira. CEMAT Participants: A. Moura, A.L. Silvestre, C. Alves, J.F. Tiago, A. João, R. Santos, J. Pavlova, P. Tricerri, S. Rossi. Total Budget: 238 000 Euros.

- New Parallel Numerical Algorithms for Current and Future High Performance Supercomputers, project PTDC/EIA-CC0/098910/2008, UT Austin - Portugal International Collaboration for Emerging Technologies (CoLab). PI: J.A. Acebron. Members: C. Nunes, A. Rodrigues-Rozas, A. Sequeira. CEMAT's budget: 130000 Euros.

- Numerical methods for systems of mixed-type functional-differential equations, Fev. 2013 – Jan. 2014. Financed by: University of Chester, UK. Coordinator: P.M. Lima. CEMAT's budget: 4933 Pound sterling.

- Robust Methods in Statistical Genetics, project PTDC/MAT-STA/0568/2012, 2013/04/01-2015/03/31. Member: A. Pires. Total budget: 40.000 Euros CEMAT's budget 4.001 Euros

- SANAF - Análise Estocástica e Aproximações Numéricas em Matemática Financeira, 2011/06/09-2014/06/08. Leader: C. Nunes. Participants: J. Acébron, C. Amado. CEMAT's budget: 153660 Euros. CEMAT's 2013 budget: 43742 Euros.

## **G- Models**

## **H- Computational Applications**

## **I- Test Platforms**

## **J- Laboratory Prototypes**

## **K- Patents**

## **L- Prizes or Awards**

C.M. Santos Pereira, FEUP Teaching Stimulus Prize 2012/13.

## **M: Outreach extension activities in 2013**

A. Pacheco, M.R. de Oliveira, and A.L. Silvestre. Co-organizers of the “Escola de Verão de Matemática, Estatística e Computação”, Instituto Superior Técnico, Universidade Técnica de

Lisboa, July 22-24, 2013.

M.R. de Oliveira and A.L. Silvestre. Organizers of the “Escola de Inverno de Matemática”, Instituto Superior Técnico, Universidade Técnica de Lisboa, February 4-6, 2013.

M. Rebelo and N. Martins. Organizers of “Projeto de Matemática Computacional” at MatNova 2013, FCT-UNL, September 2013.