

Curriculum vitae of Richard Baltensperger

Date of birth: May 1st, 1972
Place of birth: Neuchâtel, Switzerland
Place of origin: Brütten (Zürich), Switzerland
Marital status: Married to Marie-Pierre Roy, October 8, 2004
Children : Cédric (2006), Xavier (2013) and Aurélie (2015)
Nationalities: Swiss and Italian
Languages: French (mother tongue), good knowledge of English, German, and Italian
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EDUCATION

University: 2000 – 2006: *Aggregation in mathematics*, University of Fribourg (UniFR).
 1995 – 1999: *PhD in mathematics*, UniFR.
 1994 – 1998: *Diploma for teaching mathematics an informatics at the secondary level*, UniFR.
 1991 – 1995: *Diploma in mathematics with informatics as minor branch*, UniFR.

APPOINTMENTS

Since 2007: *Lecturer*. UniFR (2007, 2009, 2012, 2014-2015 and 2018-2019)
2008 – 2014: *Dean of core courses (mathematics, physics, language, communication...)*.
 Haute école d'ingénierie et d'architecture de Fribourg (HEIA-FR).
Since 2006: *Professor (Professeur HES)*. HEIA-FR.
2004 – 2006: *Lecturer*. HEIA-FR.
2001 2003: *Teacher of mathematics*. Ecole SOFT (professional school of computer sciences), Villars-sur-Glâne, Fribourg.
2000 – 2006: *Doctor assistant and lecturer*. .
1999 – 2000: *Post-Doctoral fellow of the SNF (Swiss National Science foundation)*.
 Simon Fraser University, Burnaby (Vancouver), Canada.
1995 – 1999: *Assistant and lecturer*. .
Summer 1994: *Developer*. / C. Plath GmbH, Hamburg, Germany.
1993 – 1995: *Tutor*. UniFR.

MISCELLANEOUS

- Reviewer for scientific reviews.
- Member of FRI-SAM (Fribourg, statistics and applied mathematics, www.frisam.ch), a versatile group of experienced mathematicians of the UniFR and the HEIA-FR that offers its expertise to interested firms and companies (since 2008, coordinator from 2008 to 2014).
- Co Applicant of the project “Plateforme de monitoring longue durée du réseau d’irrigation de la commune de Bagnes” (WATERMON, 2018 – 2020).
- Co Applicant of the project “Valorisation du tourteau de noix : extraction de l’huile et des protéines, caractérisation et impacts écologiques ” (ECO-WALLY, 2018 – 2019).
- Co Applicant of the CTI (The Innovation Promotion Agency) project “Food contact materials compliance based on migration and exposure modeling” (2009 – 2011).
- Co Applicant of the project “ANOVA” (2006 – 2008).
- Main organizer of the “Fête de remise des diplômes 2004”, Faculté des Sciences, UniFR.
- Winner of the Thürler-Reeb grant, 1999.
- Hopper’s project development, a simulation environment for the detection of frequency hopping transmitter. Programming of a distributed version in PVM (Parallel Virtual Machine), 1994.
- Three years in Kigali, Rwanda, 1981 – 1984.

COMPLETE LIST OF PUBLICATIONS

- [1] Breguet Mercier V., Scholten U., Baltensperger R., Gremaud L. and Dabros M. Distance teaching in chemistry: opportunities and limitations, *CHIMIA*, **75**(1/2), 58-63, (2021).
- [2] Robyr J.-L., Bourquin V., Goetschi D., Schroeter N., and Baltensperger R. Modeling the vertical motion of a zero pressure gas balloon, *Journal of Aircraft*, **57**(5), 991-994, (2020).
- [3] Roduit B., Luyet C. A., Hartmann M., Folly P., Sarbach A., Dejeaifve A., Dobson R., Schroeter N., Vorlet O., Dabros M. and Baltensperger R. Continuous monitoring of shelf lives of materials by application of data loggers with implemented kinetic parameters, *Molecules*, **24**(12), 2217, (2019).
- [4] Aymon L., Decaix J., Carrino F., Mudry P.-A., Mugellini E., A. Khaled O., Baltensperger R. Leak detection using random forest and pressure, *Swiss Conference on Data Science (SDS2019)*, (2019).
- [5] Goetschi D., Robyr J.-L., Schroeter N., Bourquin V. and Baltensperger R., Gordon Bennett Gas balloon 2D and 3D game, *GSGS’18, 3rd gamification and serious game symposium*, (2018).
- [6] Roduit B., Hartmann M., Folly P., Sarbach A., Brodard P., Baltensperger R. New kinetic approach for evaluation of hazard indicators based on merging DSC and ARC or large scale tests, *Chemical Engineering Transactions*, **48**, 37-42, (2016).
- [7] Roduit B., Hartmann M., Folly P., Sarbach A., Baltensperger R. Thermal decomposition of AIBN, Part B: Simulation of SADT value based on DSC results and large scale tests

- according to conventional and new kinetic merging approach, *Thermochimica Acta*, **621**, 6-24, (2015).
- [8] Roduit B., Hartmann M., Folly P., Sarbach A., Brodard P., Baltensperger R. Determination of Thermal Hazard from DSC Measurements. Investigation of Self Accelerating Decomposition Temperature (SADT) of AIBN, *Journal of Thermal Analysis and Calorimetry*, **117**, 1017-1026 (2014).
- [9] Roduit B., Hartmann M. Folly P., Sarbach A. and Baltensperger R. Prediction of thermal stability of materials by modified kinetic and model selection approaches based on limited amount of experimental points, *Thermochimica Acta*, **579**, 31-39 (2014).
- [10] Sokhn N., Baltensperger R., Bersier L.-F., Ultes-Nitsche U. and Hennebert J. Structure Comparison of binary and weighted niche-overlap graphs. In: Contucci P., Menezes R., Omicini A., Poncela-Casasnovas J. (eds) *Complex Networks V. Studies in Computational Intelligence (CompleNet)*, **549**. Springer, Cham, 119-127 (2014).
- [11] Sokhn N., Baltensperger R., Bersier L.-F., Ultes-Nitsche U. and Hennebert J. Structural network properties of niche-overlap graphs. *2013 International Conference on Signal-Image Technology Internet-Based Systems (SITIS)*, 478-482 (2013).
- [12] Sokhn N., Baltensperger R., Bersier L.-F., Hennebert J. and Ultes-Nitsche U. Identification of chordless cycles in ecological networks. *COMPLEX 2012* (2012).
- [13] Baltensperger R. Barycentric rational interpolation with asymptotically monitored poles, *Numerical Algorithms*, **57**, 67-81 (2011).
- [14] Ang E.-T., Schäfer R., Baltensperger R., Wernig A., Celio M. and Sancho Oliver S. Motor axonal sprouting and neuromuscular junction loss in an animal model of Charcot-Marie-Tooth disease, *Journal of Neuropathology & Experimental Neurology*, **69**, 281-293 (2010).
- [15] Baltensperger R., Loosli A., Sauvain H., Zima M., Anderson G. and Nuqui R. An implementation of two-stage hybrid stat estimation with limited number of PMU, *The 10th IET International Conference on Developments in Power System Protection (IET Conf. Pub.)*, **131** (2010).
- [16] Banasek-Richter C., Bersier L.-F., Cattin M.-F., Baltensperger R., Gabriel J.-P., Merz Y., Ulanowicz R.E., Tavares A. F., Williams D. D., de Ruyter P., Winemiller K. and Naisbit, R. E. Complexity in quantitative food webs. *Ecology*, **90**, 1470-1477 (2009).
- [17] Bersier, L.-F., Cattin, M.-F., Banasek-Richter, C., Baltensperger, R. and Gabriel, J.-P. Reply to Martinez and Cushing. *Ecological Networks*, Oxford University Press, 91-92 (2006).
- [18] Garcion C., Baltensperger R., Fournier T., Gabriel J.-P., Pasquier J., Schnetzer M.-A. and Métraux J.-P. FiRe and microarrays: a fast answer to burning questions. *Trends in Plant Science*, **11**, 320-322 (2006).
- [19] Berrut J.-P., Baltensperger R. and Mittelmann H. D. Recent developments in barycentric rational interpolation. *International Series of Numerical Mathematics*, **151**, 27-51 (2005).
- [20] Weber V., Daul C. A. and Baltensperger R. Radial numerical integrations based on the *Sinc* function. *Computer Physics Communications*, **163**, 133-142 (2004).
- [21] Cattin M.-F., Bersier L.-F., Banasek-Richter C., Baltensperger R and Gabriel J.-P. Phylogenetic constraints and adaptation explain food-web structure. *Nature*, **427**, 835-839 (2004).
- [22] Schnetzer M.-A., Ruegg D. G., Baltensperger R. and Gabriel J.-P. Three-dimensional model of the muscle structure and the surface EMG. *Proceedings of the 5th European*

- Conference of the European Society of Mathematical and Theoretical Biology (ESMTB) on Mathematical Modelling & Computing in Biology and Medicine (2003).*
- [23] Baltensperger R. and Trummer M. R. Spectral differencing with a twist. *SIAM Journal of Scientific Computing*, **24**, 1465-1487 (2003).
- [24] Baltensperger R., Berrut J.-P. and Dubey Y. The linear rational pseudospectral method with preassigned poles, *Numerical Algorithms*, **33**, 53-63 (2003).
- [25] Baltensperger R. Some results on linear rational trigonometric interpolation. *Computers and Mathematics with Applications*, **43**, 737-746 (2002).
- [26] Berrut J.-P. and Baltensperger R. The linear rational collocation method for boundary value problems. *BIT*, **41**, 868-879 (2001).
- [27] Schnetzer M.-A., Ruegg D. G., Baltensperger R. and Gabriel J.-P. Three-dimensional model of a muscle and simulation of its surface EMG. *Proceedings of the 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society* (2001).
- [28] Baltensperger R. and Berrut J.-P. The linear rational collocation method. *Journal of Computational and Applied Mathematics*, **134**, 243-258 (2001).
- [29] Baltensperger R. Improving the accuracy of the matrix differentiation method for arbitrary collocation points. *Applied Numerical Mathematics*, **33**, 143-149 (2000).
- [30] Baltensperger R. and Berrut J.-P. The errors in calculating the pseudospectral differentiation matrices for Chebyshev-Gauss-Lobatto points. *Computers and Mathematics with Applications*, **37**, 41-48. Errata, **38**, 119 (1999).
- [31] Baltensperger R., Berrut J.-P. and Noël B. Exponential convergence of a linear rational interpolant between transformed Chebyshev points. *Mathematics of Computation*, **68**, 1109-1120 (1999).

OTHER PUBLICATIONS

- [32] Baltensperger R. Application de la modélisation mathématique et de l'interpolation en sciences. *Habilitation*, Université de Fribourg (2006).
- [33] Bersier L.-F., Baltensperger R., Mattart-Monti M. and Gabriel J.-P. Apportionment rules and related probability distributions. *Rapport No. 2002-2*, Department of Mathematics, University of Fribourg (2002).
- [34] Bersier L.-F., Baltensperger R. and Gabriel J.-P. Why are cordless cycles so common in niche overlap graphs? *Ecological Society of America, 2002 Annual Meeting*, **76** (Abstract) (2002).
- [35] Schnetzer M.-A., Ruegg D. G., Baltensperger R. and Gabriel J.-P. Distribution of the motor units within a muscle and their surface EMG (1). *Rapport No. 2001-4*, Department of Mathematics, University of Fribourg (2001).
- [36] Baltensperger R. Résolution numérique de l'équation des ondes en dimension deux par la méthode de collocation rationnelle linéaire. *Ph.D. thesis*, Institute of Mathematics, University of Fribourg (1999).
- [37] Baltensperger R., Berrut J.-P. and Noël B. Convergence exponentielle d'un interpolant rationnel linéaire entre des points de Chebyshev transformés. *Rapport No. 96-5*, Institute of Mathematics, University of Fribourg (1996).

[38] Baltensperger R. Résolution d'équations aux dérivées partielles avec un interpolant rationnel. *Diploma-thesis*, Institute of Mathematics, University of Fribourg (1995).