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Martine Olivi

Formation

25/10/2010 **Habilitation à diriger des recherches**, *Université de Nice Sophia Antipolis*.
Parametrization of rational lossless matrices with application to linear system theory.

25/06/1987 **Doctorat**, *Université de Provence (Aix-Marseille I)*.
Les anneaux de nombres parmi les anneaux de Dedekind.

1985 **Agrégation de Mathématiques**.

1981-1983 **École Nationale Supèrieure des Mines de St-Etienne**.

1982 **DEA de Mathématiques**, *Université de Provence*, Marseille.

Expérience professionnelle

1988- **Chargée de recherche**, *INRIA*, Sophia-Antipolis.

1986-1988 **Contrat DRET jeune chercheur**, *INRIA*, Sophia-Antipolis.

1985-1986 **Stage d'agrégation**, *lycée du Portail Rouge*, St. Étienne, Académie de Lyon.

Activités d'enseignement

2005-2012 **Cours de mathématiques pour l'ingénieur**, *Polytech'Nice-Sophia*.
section Mathématiques Appliquées et Modélisation

1986-1991 **Travaux dirigés**, *Université de Nice*.

— calcul différentiel, licence mathématique, 1991-1992 ;
— théorie des langages, ESSI 1ère année,1991-1992 ;
— groupes de symétrie, maitrise mathématique, 1990-1991 ;
— optimisation, maitrise MIM, 1986-87,

1983-1986 **Travaux dirigés**, *École des Mines de St-Etienne*.

— programmation linéaire, théorie des graphes, 1985-86 ;
— intégration, analyse fonctionnelle, 1983-85 ;

1983-1986 **Colles en Mathématiques Supérieures**, *lycées Fauriel (St-Etienne) et Thiers (Marseille)*.

Activités d'encadrement

Doctorants

- M. Caenepeel (2013-2016), Macro-modèles pour la conception des Filtres aux hautes fréquences ;
- V. Lunot (2007-2008), Technique Techniques d'approximation rationnelle en synthèse fréquentielle : problème de Zolotarev et algorithme de Schur ;
- P. Fulcheri (1991-1994), Approximation rationnelle matricielle dans H^2 et analyse de Schur. Application à l'identification des systèmes ;
- M. Cardelli (1987-1990), Contribution à l'approximation rationnelle L^2 des fonctions de transfert.

Responsabilité collectives

2011- **Chargée de Médiation Scientifique**, *centre Inria-Sophia Antipolis Méditérannée*, et présidente de la commission MASTIC de Médiation et Animation Scientifique.

Sept. 2011 **Organisation du workshop ERNSI**, *the European Research Network System Ientification*.

2004-2011 **Membre du commité de suivi doctoral**, *centre Inria Sophia-Antipolis-Méditérannée*.

Logiciels

RARL2 Logiciel d'approximation par des fonctions matricielles rationnelles stables. Permet de faire de la réduction de modèle et de l'identification fréquentielle.

- composant des logiciels :
  - PRESTO-HF : dédié à l'identification de filtres hyperfréquences
  - FindSource3D de localisation de sources en électroencéphalographie
- utilisateurs académiques : universités de Maastricht (Pays Bas), Cork (Irlande), Macau (Chine), Bruxelles (Belgique), BITS- Pilani Hyderabad Campus (Indes), ONERA (Toulouse).
- utilisateurs industriels de PRESTO-HF : Thales Alenia Space (Toulouse), TAS-Espagna et Thales Airborne Systems, Flextronics.
- site web : `http://www-sop.inria.fr/apics/RARL2/rarl2.html`.

Publications

Toutes les publications sont consultables sur ma page web.

Articles de journaux

[1] A. Cooman, F. Seyfert, M. Olivi, S. Chevillard, and L. Baratchart. Model-free closed-loop stability analysis : a linear functional approach. *MTT*, 2017.

[2] L. Baratchart, M. Olivi, and F. Seyfert. Boundary nevanlinna-pick interpolation with prescribed peak points : application to impedance matching. *SIMA*, 2017.

[3] S. Lefteriu, M. Olivi, F. Seyfert, and M. Oldoni. System identification of microwave filters from multiplexers by rational interpolation. *Automatica*, 2016.

[4] F. Seyfert, M. Oldoni, M. Olivi, S. Lefteriu, and D. Pacaud. De-embedding of filters in multiplexers via rational approximation and interpolation. *International Journal of RF and Microwave Computer-Aided Engineering*, 2015.

[5] M. Olivi, F. Seyfert, and J.-P. Marmorat. Identification of microwave filters by analytic and rational H^2 approximation. *Automatica*, 2012.

[6] L. Baratchart, S. Kupin, V. Lunot, and M. Olivi. Multipoint Schur algorithm and orthogonal rational functions : convergence properties. *Journal d'Analyse Mathématique*, 2011.

[7] R. Peeters, B. Hanzon, and M. Olivi. Canonical lossless state-space systems : staircase forms and the Schur algorithm. *Linear Algebra and its Applications*, 2007.

[8] J.-P. Marmorat and M. Olivi. Nudelman interpolation, parametrizations of lossless functions and balanced realizations. *Automatica*, 2007.

[9] L. Baratchart, P. Enqvist, A. Gombani, and M. Olivi. Minimal symmetric Darlington synthesis. *MCSS*, 2007.

[10] M. Olivi. The Laplace transform in control Theory. *Lecture notes in Control and Information Sciences*, 2006.

[11] B. Hanzon, M. Olivi, and R. Peeters. Balanced realizations of discrete-time stable all-pass systems and the tangential Schur algorithm. *Linear Algebra and its Applications*, 2006.

[12] A. Gombani and M. Olivi. A new parametrization of rational inner functions of fixed degree : Schur parameters and realizations. *MCSS*, 2000.

[13] J. Leblond and M. Olivi. Weighted H^2 approximation of transfer functions. *MCSS*, 1998.

[14] P. Fulcheri and M. Olivi. Matrix rational H^2-approximation : a gradient algorithm based on Schur analysis. *SIAM Journal on Control and Optimization*, 1998.

[15] L. Baratchart and M. Olivi. Critical points and error rank in best H^2 matrix rational approximation. *Constructive Approximation*, 1998.

[16] L. Baratchart, M. Olivi, and F. Wielonsky. On a rational approximation problem in the real Hardy space H_2. *Theoretical Computer Science*, 1992.

[17] L. Baratchart, M. Cardelli, and M. Olivi. Identification and rational L^2 approximation : a gradient algorithm. *Automatica*, 1991.

[18] M. Olivi and S. Steer. Approximation rationnelle en Norme L^2 des systèmes dynamiques. *APII*, 1990.

[19] L. Baratchart and M. Olivi. Index of critical points in L^2-approximation. *System and Control Letters*, 1988.

Publications dans des conférences internationnales

[1] D. M. Martínez, G. Bose, F. Seyfert, and M. Olivi. Convex optimization method for matching filters synthesis. In *Proceedings of the 2nd URSI AT-RASC*, Gran Canaria, Spain, June 2018.

[2] D. M. Martínez, G. Bose, F. Seyfert, and M. Olivi. Convex optimization method for matching filters synthesis. In *Proceedings of the 7th International Workshop on Microwave Filters*, Noordwijk, Netherlands, 2018.

[3] G. Bose, D. M. Martínez, F. Seyfert, and M. Olivi. A convex approach to the finite dimentional matching problem in communication systems. In *Proceedings of the MTNS*, Hing-Kong, July 2018.

[4] D. M. Martínez, F. Seyfert, M. Olivi, S. Bila, and F. T. et al.. Synthesis method for matching filters. In *Proceedings of the IMS*, Honolulu, Hawai, 2017.

[5] D. M. Martínez, F. Seyfert, M. Olivi, S. Bila, and F. T. et al.. Optimized synthesis of a microwave equalizer for matching a high performance small antenna. In *Proceedings of the IEEE International Conference on Antenna Measurements & Applications*, Syracuse, United-States, 2016.

[6] L. Baratchart, M. Olivi, and F. Seyfert. A unified approach to Nevanlinna-Pick interpolation problems. In *Proceedings of the MTNS*, Mineapolis, United-States 2016.

[7] M. Caenepeel, F. Seyfert, Y. Rolain, and M. Olivi. Parametric modeling of the coupling parameters of planar coupled-resonator microwave filters. In *Proceedings of the EuMC*, Paris, France, 2015.

[8] M. Caenepeel, F. Seyfert, Y. Rolain, and M. Olivi. Microwave filter design based on coupling topologies with multiple solution. In *Proceedings of the IMS*, Phoenix, United-States, 2015.

[9] F. Seyfert, M. Oldoni, M. Olivi, S. Lefteriu, and D. Pacaud. Deembedding of filters in multiplexers via rational approximation and interpolation. In *Proceedings of the IMS*, Tampa Bay, Florida, 2014.

[10] L. Baratchart, M. Olivi, and F. Seyfert. Generalized Nevanlinna-Pick interpolation on the boundary. Application to impedance matching. In *Proceedings of the MTNS*, Groninguen, Netherlands, 2014.

[11] R. L. Peeters, M. Olivi, and B. Hanzon. Continuous-time lossless systems, boundary interpolation and pivot structures. In *SSSC- 5th Symposium on System Structure and Control - 2013*, Grenoble, France, 2013.

[12] S. Lefteriu, M. Oldoni, M. Olivi, and F. Seyfert. De-embedding multiplexers by Schur reduction. In *Proceedings of the CDC*, Florence (Italy), 2013.

[13] C. Sexton, B. Hanzon, and M. Olivi. Rational approximation of transfer functions for non-negative EPT densities. In *Proceedings of the SYSID*, Brussels, Belgium, 2012.

[14] R. Peeters, M. Olivi, and B. Hanzon. Parametrization of matrix-valued lossless functions based on boundary interpolation. In *Proceedings of the MTNS*, Budapest, Hungary, 2010.

[15] L. Baratchart, P. Enqvist, A. Gombani, and M. Olivi. Minimal symmetric Darlington synthesis : the real case. In *Proceedings of the MTNS*, Budapest, Hungary, 2010.

[16] D. Avanessoff, M. Olivi, and F. Seyfert. Polynomial structure of 3×3 reciprocal inner matrices. In *Proceedings of the MTNS*, Budapest, Hungary, 2010.

[17] B. Hanzon, M. Olivi, and R. Peeters. Subdiagonal pivot structures and associated canonical forms under state isometries. In *Proceedings of the SYSID*, St Malo, France, 2009.

[18] B. Hanzon, M. Olivi., and R. Peeters. Balanced realization of lossless systems : Schur parameters, canonical forms and applications. In *Proceedings of the SYSID*, St Malo, France, 2009.

[19] M. Olivi, B. Hanzon, and R. Peeters. Lossless scalar functions : boundary interpolation, Schur algorithm and Ober's canonical form. In *Proceedings of the CDC*, Cancun, Mexico, 2008.

[20] M. Olivi, B. Hanzon, and R. Peeters. A Schur algorithm for symmetric inner functions. In *Proceedings of the CDC*, Seville, Spain, 2005.

[21] R. Drai, J. Marmorat, and M. Olivi. A chain-scattering approach to LMI multi-objective control. In *Proceedings of the IFAC World Congress*, Prague, Czech Republic, 2005.

[22] R. Peeters, B. Hanzon, and M. Olivi. Canonical lossless state-space systems : staircase forms and the Schur algorithm. In *Proceedings of the SSSC*, Oaxaca, Mexico, 2004.

[23] J. Marmorat and M. Olivi. Parametrization of lossless functions and balanced realizations. In *Proceedings of the SSSC*, Oaxaca, Mexico, 2004.

[24] J.-P. Marmorat, M. Olivi, B. Hanzon, and R. Peeters. Schur parametrizations and balanced realizations of real discrete-time stable allpass systems. In *Proceedings of the CDC*, Maui, Hawai, 2003.

[25] R. Peeters, B. Hanzon, and M. Olivi. On a recursive state-space method for discrete-time H^2-approximation. In *Proceedings of the MTNS*, Notre-Dame, United-States, 2002.

[26] J.-P. Marmorat, M. Olivi, B. Hanzon, and R. Peeters. Matrix rational H^2 approximation : a state-space approach using Schur parameters. In *Proceedings of the CDC*, Las-Vegas, United-States, 2002.

[27] R. Peeters, B. Hanzon, and M. Olivi. Linear fractional transformations and balanced realizations of discrete time stable allpass systems. In *Proceedings of the SSSC*, Prague, Czech Republic, 2001.

[28] L. Baratchart, A. Gombani, and M. Olivi. Parameter determination for surface acoustic wave filters. In *Proceedings of the CDC*, Sydney, Australia, 2000.

[29] R. Peeters, B. Hanzon, and M. Olivi. Balanced realizations of discrete-time stable all-pass systems and the tangential Schur algorithm. In *Proceedings of the ECC*, Karlsruhe, Germany, 1999.

[30] P. Fulcheri and M. Olivi. Matrix rational H^2 approximation and Schur parameters. In *Proceedings of the CDC*, Phoenix, United-States, 1999.

[31] J. Leblond and M. Olivi. Weighted h^2 approximation of transfer functions. In *Proceedings of the IFIP TC7 "System Modelling and Optimization"*, Prague, Czech Republic, 1995.

[32] L. Baratchart and M. Olivi. Inner-unstable factorization of stable rational transfer functions. In *Progress in System and Control Theory : Modeling, Estimation and Control of Systems with Uncertainty*. Birkhäuser, 1991.

[33] L. Baratchart and M. Olivi. New tools in rational L^2 approximation. In *Proceedings of the IFAC*, Pekin, China, 1988.