Dossier

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1 Personal Data

Name	:	Massimo
Family name	:	Fornasier
Birthday	:	July 6 1975
Place of birth	:	Feltre (BL), Italy
Marital status	:	single, no kids
Academic titles	:	Prof. Dr. (It: Dott. Ric. Dott.)
Citizenship	:	Italian

Current Office : Full Professor (W3- Leuchtturm-Professur), Chair in Applied Numerical Analysis

Address:
Faculty of Mathematics
Technical University of Munich
Boltzmannstrasse 3, D-85748 Garching, GERMANY

Tel: +49 (0) 89 289 17485
Fax: +49 (0) 89 289 18435
E-mail: massimo.fornasier@ma.tum.de
Web: `http://www-m15.ma.tum.de/Allgemeines/`

2 Presentation

2.1 Academic career in short

I was a doctoral student in Computational Mathematics at the University of Padua in Italy (1999-2002), under the joint supervision of Prof. Hans G. Feichtinger (Institute for Mathematics, University of Vienna, Austria) and Prof. Maria Morandi Cecchi (Department of Pure and Applied Mathematics, University of Padua, Italy). In the period 1998-2004 I was co-author together with Prof. Domenico Toniolo (Department of Physics "Galileo Galilei") and scientific responsible of the Mantegna Project, i.e., the complete (mathematics based and computer assisted) restoration of the famous Andrea Mantegnas frescoes in Padua (Italy) destroyed by a bombing in World War II[1]. I was awarded a scientific prize by the University of Padua for "A scientific work on the computer restoration of the fragments of the art frescoes in the Eremitani's Church in Padua". After the doctoral studies, I joined the EU-Research Training Network HASSIP (Harmonic Analysis and Statistics for Signal and Image Processing HPRN-CT-2002-00285), with PostDoc positions at the University of Vienna, Austria, University of Bremen, and University of Marburg, Germany (2003-2004). Later I obtained an Intra-European Individual Marie Curie Fellowship, project *Flexible Time-Frequency Decompositions and Adaptive Treatment of Operator Equations by Frames* (FTFDORF), at the University of Vienna (2004-2006). During the period 2003-2006 I also cooperated with the University of Rome "La Sapienza" on the basis of a local research grant. I joined RICAM (the Johann Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences, Linz, Austria) in June 2006 and, with an unpaid leave of one year, I started in Oct. 2006 a cooperation within the Program in Applied and Computational Mathematics (PACM), Princeton University, U.S.A., on the basis of a second individual project *Sparse Approximation for Blind Source Separation* (SPARSE), an Outgoing International Marie Curie Fellowship. A further major project was approved in Nov. 2006: WWTF "Five Senses - Call 2006", *Mathematical Methods for Image Analysis and Processing in Visual Arts*. In October 2007, I returned to RICAM. In June 2008 I obtained the Habilitation (venia docendi) at the University of Vienna. In September 2008 I received a call for a W1 (junior) Professorship in Numerical Fourier Analysis from the University of Rostock (Germany), later declined. In November 2008 I have been awarded the START-Preis of the Fonds zur Förderung der wissenschaftlichen Forschung, Austria for the project "Sparse Approximation and Optimization in High Dimensions". Since January 2009 until March 2011 I was co-leader of the group of Analysis of PDEs at RICAM, and since April 2009 until June 2015 I coordinated the research team of the START project. In April 2009 I have been awarded the scientific prize "Prix de Boelpaepe" of the Royal Academy of Sciences of Belgium for my work in mathematical imaging. In the period October-November 2009 I covered an invited visiting position at the Texas A&M University in College Station, Texas, U.S.A. On February 26 2010 I received a call for a W2 Professorship in Numerics for Partial Differential Equations/Scientific Computing from the University of Bonn (Germany), later declined. On April 14 2010 I received the "Best Paper Award" of the Austrian Academy of Sciences. On April 14 2010 my position at RICAM was made permanent. In the period March-May 2010 I was covering a visiting Professor position at the University of Vienna (Austria). In July 2010 I have been granted a Heisenberg Professorship from the Deutsche Forschungsgemeinschaft (DFG) in Germany[2]. This Programme was for a start-up co-financing for a Chair in Numerical Analysis at the Philipps-University of Marburg in Germany. On January 25, 2011 I received a direct call from the President of the Technical University of Munich (TUM) for a W3 Leuchtturm-Professur, to cover a Chair in Applied Numerical Analysis, which I accepted on January 26, 2011, declining at the same time the call from Marburg. Since April 1, 2011 I have been serving at the TUM, mantaining a Scientific Advisor position at RICAM until June 2015, for the conclusion of the START project. On December 24, 2011 I have been notified the award of the Biennial SIMAI Prize (Società Italiana di Matematica Applicata ed Industriale) in its first edition and given to applied mathematicians below 37 years of age. In July 2012 I received a call for a full Professorship in Numerical Analysis of Partial Differential Equations at the University of Vienna, later declined. On July 19, 2012 I have been awarded an ERC-Starting Grant for the project "High-Dimensional Sparse Optimal Control". On August 10, 2013 I have been invited to be a Member of the Institute for Advanced Studies at TUM. Since January 1, 2014

[1] `http://www.progettomantegna.it`

[2] `http://www.dfg.de/en/research_funding/programmes/individual/heisenberg/in_brief/index.html`

I'm Associated Editor of Networks and Heterogenous Media. Since May 7, 2014 I'm Associated Editor of the Journal of Fourier Analysis and Applications. Since November 27, 2014 I'm Associated Editor of Calcolo. On February 24, 2015 I have been asked as an Invited Speaker at the 7th European Congress of Mathematics.

3 Curriculum Vitae

3.1 Education and academic degrees

Habilitation (venia docendi)
Habilitationsschrift title: *Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems*
Faculty of Mathematics,
University of Vienna, Austria
June 4, 2008

Doctoral degree in Computational Mathematics
Dissertation Title: *Constructive Methods for Numerical Applications in Signal Processing and Homogenization Problems*
no grades are provided in Italy
University of Padua (Italy), February 17 2003
Advisors: Prof. Dr. Hans Georg Feichtinger, Prof. Dr. Maria Morandi Cecchi

Graduate Programme in Computational Mathematics
University of Padua, Italy
Nov. 1999 – Dec. 2002

Laurea in Mathematics
Graduated *Magna cum Laude*
University of Padua, Italy
October 28 1999

Studies in Mathematics
University of Padua, Italy
Nov. 1994 – Oct. 1999

3.2 Academic positions

Full Professor in Applied Numerical Analysis
Faculty of Mathematics
Technical University of Munich, Germany.
April 2011 –

Visiting Professor
Faculty of Mathematics
University of Vienna, Austria.
March – May 2010

Visiting Scholar
Department of Mathematics
Texas A&M University, U.S.A.,
October – December 2009

Leader of the FWF START-Project
"Sparse Approximation and Optimization in High-Dimensions"

Johann Radon Institute for Computational and Applied Mathematics
Austrian Academy of Sciences, Austria.
April 2009 – June 2015

Leader of the Group of Analysis of Partial Differential Equations
(jointly with Peter A. Markowich) Johann Radon Institute for Computational and Applied Mathematics
Austrian Academy of Sciences, Austria.
January 2009 – March 2011

Senior Research Scientist
(tenured position since April 2010)
Johann Radon Institute for Computational and Applied Mathematics
Austrian Academy of Sciences, Austria.
June 2006 – March 2011

Research Associate
Program in Applied and Computational Mathematics
Princeton University, U.S.A.
October 2006 – October 2007

Individual Marie Curie Fellow
Faculty of Mathematics
University of Vienna, Austria
May 2004 – April 2006

Research Assistant
Department of Mathematical Methods and Models for Applied Sciences
University of Rome "La Sapienza", Italy
June 2003 – May 2006

Research Assistant (Marie Curie Fellow)
EU-network RTN HASSIP (Harmonic Analysis and Statistics for
Signal and Image Processing, contract HPRN-CT-2002-00285)
Faculty of Mathematics
University of Vienna, Austria
January 2004 – April 2004

Research Assistant (Marie Curie Fellow)
EU-network RTN HASSIP (Harmonic Analysis and Statistics for
Signal and Image Processing, contract HPRN-CT-2002-00285)
AG Numerik/Wavelet Analysis Group – Zentrum für TechnoMathematik
University of Marburg and University of Bremen, Germany
July 2003 – December 2003

Research Assistant (Marie Curie Fellow)
EU-network RTN HASSIP (Harmonic Analysis and Statistics for
Signal and Image Processing, contract HPRN-CT-2002-00285)
Faculty of Mathematics
University of Vienna, Austria
May 2003 – June 2003

Research Assistant (Österreich-Stipendium/Austrian Scholarship)
Faculty of Mathematics

University of Vienna, Austria
November 2002 – April 2003

Doctoral student Graduate Program in Computational Mathematics
University of Padua, Italy
November 1999 – October 2002

3.3 Other invited research visits

Department of Mathematics
University of Oslo and Simula Research Labs
May 28 - June 1, 2014, 18-22 June 2014, 21-24 Nov. 2014
12-15 Feb 2015

Department of Mathematics
University of Pisa, Italy
Feb. 17-20, 2014

Department of Mathematics
Technical University of Berlin, Germany
Apr. 17-19, 2012, March 4-6, 2013, 4-6 May 2015

Department of Mathematics
University of Milano, Italy
Mar. 12-16, 2012

Department of Mathematics
University of Padua, Italy
Sept. 19-21, 2011, Mar. 22-23, 2012

Department of Mathematics
Rutgers University, U.S.A.
Sept. 28-30, 2011, Feb. 19-24, 2012, Mar. 10-17, 2013

Department of Mathematics
Duke University, U.S.A.
Sept. 24-28, 2011, Oct. 7-12, 2012

Max-Planck Institute for Mathematical Sciences
Leipzig, Germany
June 22-24 2009

Department of Mathematics and Scientific Computing
University of Graz, Austria,
Feb. 26-28 2009

Institute for Numerical Simulation
University of Bonn, Germany,
Feb. 8-13 2009

Program in Applied and Computational Mathematics
Princeton University, U.S.A.
Oct. 15-27, 2008, Oct.-Dec. 2009

Department of Mathematics
University of Pavia, Italy
May 21-22, Nov. 23-26 2008

School of Mathematics
University of Edinburgh, UK
Feb. 27 - Mar. 5 2008

Department of Applied Mathematics and Theoretical Physics
Center of Mathematical Sciences
Cambridge University, UK
Nov. 21-30 2007, Mar. 6-12, Nov. 17-23 2008, April 19-23 2009

Courant Institute of Mathematical Sciences
New York University, U.S.A.
Feb. 6-8,12,19-20,22,27, Mar. 21, Apr. 27,30, May 22 2007.

AG Numerik/Wavelet-Analysis Group,
Fachbereich Mathematik und Informatik der
Philipps-Universitaet Marburg, Germany
Mar. 8-12 2004, Jun. 23-26 2004, Aug. 16-27 2004,
Mar. 6-16 2005, Jan. 16-20 2006, Sept. 24-20 2006,
Mar. 23-30 2008, Aug. 18-29 2008, Aug. 7-14 2009,
Nov. 2-4, 2011, Feb. 27 - Mar. 3, 2012, Feb. 26 -28 2013
29-31 March 2015

3.4 Other contracts and cooperations

Consulting contract (project: FWF Operatoren fuer Zeit-Frequenz Analysis)
Faculty of Mathematics
University of Vienna, Austria
November 2002 – April 2003

Cooperation pro bono publico (Mantegna Project)
Conception and realization of the Mantegna Project, the mathematical and computer assisted restoration of Mantegnas art frescoes in the Eremitani Church in Padua (www.progettomantegna.it)
Mantegna Project Lab.
University of Padua, Italy
1999 – 2010

3.5 Individual honors and awards

Invited Speaker at the 7th European Congress of Mathematics, Berlin, July 18-22, 2016.

Editor of the journal Networks and Heterogenous Media, Jan. 1, 2014, of the Journal of Fourier Analysis and Applications, May 7, 2014, of Calcolo, Nov. 27, 2014.

Member of the Institute of Advanced Studies of the Technical University of Munich, August 10, 2012.

ERC-Starting Grant for the project “High-Dimensional Sparse Optimal Control”, July 19, 2012.

Lezione Lagrangiana within the project: "Towards an efficient diffusion of innovative mathematical results", University of Torino, Italy, May 22, 2012.

Binnial SIMAI Prize, Società Italiana di Matematica Applicata ed Industriale, Italy, 2012.

Leuchtturm Professur (Lighthouse Professorship), Technical University of Munich, Germany, 2011.

Heisenberg Professorship (Deutsche Forschungsgemeinschaft), a start-up co-financing for a Chair in Numerical Analysis at the Philipps-University of Marburg in Germany, 2010

Best Paper Award (Jubiläumsfonds der Stadt Wien für die ÖAW 2009), Austria, 2010, for the paper *Iteratively re-weighted least squares minimization for sparse recovery* (with I. Daubechies, R. DeVore, C. S. Güntürk), Commun. Pure Appl. Math., Vol. 63, no. 1, 2010, pp. 1-38

Scientific prize "Prix de Boelpaepe" of the Académie Royale de Belgique – Classe des Sciences, April 4 2009, Belgium

The paper *Restoration of color images by vector valued BV functions and variational calculus* (with R. March), SIAM J. Appl. Math., Vol. 68 No. 2, 2007, pp. 437-460 is used by SIAM (Society for Industrial and Applied Mathematics in the U.S.A.) as a relevant example of applicable mathematics:
`http://www.siam.org/publicawareness/images.php`

FWF-START award 2008 for the project "Sparse Approximation and Optimization in High-Dimensions"

Finalist (among the best 4 candidates) for the scientific prize "Young researchers in Mathematics competition", University of Padua, 2007

Scientific Prize for "A scientific work on the computer restoration of the fragments of the art frescoes in the Eremitanis Church in Padua", University of Padua, Italy, 1999

Marie Curie Outgoing International Fellowship (contract MOIF-CT-2006-039438, 18 months) of the European Commission (6th Framework Programme) project "Sparse Approximation for Blind Source Separation", 2006

Individual Marie Curie Fellowship (contract MEIF-CT-2004-501018, 2 years) of the European Commission (6th Framework Programme) project "Flexible Time-Frequency Decompositions and Adaptive Treatment of Operator Equations by Frames", 2004

Research fellowship (assegno di ricerca, 3 years) "Wavelets and frames in approximation theory", University of Rome "La Sapienza", Italy, 2003

Austrian scholarship (Österreich-Stipendium, 6 months) of the Federal Ministry for Education, Science, and Culture (BMBWK) via ÖAD (Österreichischer Austauschdienst) and the Ministero degli Esteri Italiano (the Italian Ministry of Foreign Affairs), Austria, 2002

Doctoral Studies Scholarship (3 years) of the University of Padua, Italy, 1999

3.6 Recent offers for Professorships at international Universities

Offer for a Full-Professor position for a Chair in Numerics of Partial Differential Equations at the University of Vienna, Austria, 2012 (declined)

Offer for a W3-professor position for a Chair in Applied Numerical Analysis at the Technical University of Munich, Germany, 2011 (accepted)

Heisenberg Professorship for a Chair in Numerical Analysis and Computational Harmonic Analysis at the Philipps-University of Marburg, Germany, 2010 (declined)

Offer for a W2-professor position in Scientific Computing/Numerical Simulation at the University of Bonn, Germany, 2010 (declined)

Visiting Professor position at the University of Vienna, Austria, 2010

Visiting Professor position at the University of Provence in Marseille, France, 2010 (declined)

Offer for a W1-professor position in Numerical Fourier Analysis at the University of Rostock, Germany, 2008 (declined)

3.7 Other considered positions

Short-listed for a W3-professor position in Applied Mathematics, University of Göttingen, Germany 2009

Short-listed for a W3-professor position in Numerical Analysis at the Technical University of Munich, Germany, 2009

Short-listed for an Associate Professor position at the Centre of Mathematics for Applications, University of Oslo, Norway, 2009

Short-listed for a W2-professor position in Applied Mathematics at the University of Regensburg, Germany, 2009

Short-listed for a W2-professor position in Numerical Analysis at the Rheinisch-Westfaelische Technische Hochschule Aachen (RWTH-A), Germany, 2009

Short-listed for an Assistant Professor position at the Faculty of Electrical Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, 2009

Short-listed for a W2-professor position in Numerical Analysis at the University of Bonn, Germany, 2008

Short-listed for a Faculty position at the Faculty of Mathematics, Ecole Polytechnique Federal de Lausanne (EPFL), Switzerland, 2008

Short-listed for a Full Professorship position in Applied Mathematics, ETH-Zurich, Seminar in Applied Mathematics, Switzerland, April 2010

Short-listed for a Full Professorship position in Computational Mathematics, University of Basel, Switzerland 2009

Invited for an Associate Professor position in Numerical Analysis at the University of Rome "Tor Vergata", Italy, 2010 (declined)

Invited to the interview for a W3-Professor position in Mathematical Image Processing at the University of Keiserslautern, Germany, 2009

Invited to the interview for a W2-Professor position in Applied Mathematics at the Ludwig-Maximilians University of Munich, Germany, 2009 (declined)

Invited to the interview for a W1-Professor position in Scientific Computing at the University of Heidelberg, Germany, 2008 (declined)

3.8 Research publications

3.8.1 Submitted preprints to refereed journals

1. *Mean-field Pontryagin maximum principle* (with M. Bongini, F. Rossi, and F. Solombrino) submitted, Apr. 2015, pp. 36

2. *Consistency of probability measure quantization by means of power repulsion-attraction potentials* (with J.-C. Hütter), submitted to J. Fourier Anal. Appl, Feb. 2015, pp. 50

3. *Numerical analysis on Cucker-Smale collective behavior models* (with F. Vecil), submitted to Physica D, February 2013, pp. 43

3.8.2 Refereed journal papers

4. *Anisotropic mesh adaptation for crack detection in brittle materials* (with M. Artina, S. Micheletti, and S. Perotto) to appear in SIAM J. Sci. Comput., pp. 25

5. *Sparse control of alignment models in high dimension* (with M. Bongini, O. Junge, and B. Scharf) to appear in Networks and Heterogeneous Media, pp. 39

6. *Multilevel preconditioning for sparse optimization of functionals with nonconvex fidelity terms* (with S. Dahlke, U. Friedrich, and T. Raasch), to appear in Comput. Optim. Appl, pp. 48

7. *Damping noise-folding and enhanced support recovery in compressed sensing* (with M. Artina, and S. Peter), to appear in IEEE Trans. Signal Proc., pp. 13

8. *Quasi-linear compressed sensing* (with M. Ehler and J. Sigl), to apper in Multiscale Modeling and Simulation, pp. 23

9. *(Un)conditional consensus emergence under perturbed and decentralized feedback controls* (M. Bongini and D. Kalise), Discrete and Continuous Dynamical Systems, Vol. 35, No. 5, 2015, pp. 4071 - 4094

10. *Sparse stabilization and control of alignment models* (with M. Caponigro, B. Piccoli and E. Trelat), Math. Models Methods Appl. Sci., Vol. 25, No. 3, 2015, pp. 521-564.

11. *Mean-field sparse optimal control* (with B. Piccoli and F. Rossi), Phil. Trans. Royal Soc. A, in "Partial differential equation models in the socio-economic sciences" organised and edited by Peter Markowich, Martin Burger and Luis Caffarelli, Vol. 372, No. 2028, 2014.

12. *Asymptotic behavior of gradient flows driven by nonlocal power repulsion and attraction potentials in one dimension.* (with M. Di Francesco, J.-C. Hütter, and D. Matthes), SIAM J. Math. Anal., Vol. 46, No. 6, 2014, pp. 3814-3837.

13. *Parameter choice strategies for multipenalty regularization.* (with V. Naumova, and S. V. Pereverzyev), SIAM J. Numer. Anal., Vol. 52, No. 4, 2014, pp. 1770-1794

14. *Mean-field optimal control* (with F. Solombrino), ESAIM, Control Optim. Calc. Var., Vol. 20, No. 4, 2014, pp. 1123-1152

15. *Sparse stabilization of dynamical systems driven by attraction and avoidance forces* (with M. Bongini), Networks and Heterogeneous Media, Volume 9, Issue 1, March 2014, pp. 1–31

16. *Sparse stabilization and optimal control of the Cucker-Smale model* (with M. Caponigro, B. Piccoli, and E. Trelat), Mathematical Control And Related Fields, Vol. 3, No. 4, 2013, pp. 447-466

17. *Linearly constrained nonsmooth and nonconvex minimization* (with M. Artina and F. Solombrino), SIAM J. Opt., Vol. 23, No. 3, 2013, 1904-1937

18. *Consistency of variational continuous-domain quantization via kinetic theory* (with J. Haskovec and G. Steidl), Applicable Analysis, Vol. 92, No. 6, 2013, pp. 1283-1298

19. *Existence of minimizers of the Mumford and Shah functional with singular operators and unbounded data* (with R. March and F. Solombrino), Ann. Mat. Pura Appl., Vol. 192, No. 3, 2013, pp. 361-391

20. *Wavelet decomposition method for L2/TV-image deblurring* (with Y. Kim, A. Langer, and C.-B. Schoenlieb), SIAM J. Imag. Sci., 5, No. 3, 2012, pp. 857-885.

21. *Learning functions of few arbitrary linear parameters in high dimensions* (with K. Schnass and J. Vybiral), Found. Comput. Math., Vol. 2, No. 2, 2012, pp. 229-262

22. *Particle systems and kinetic equations modeling interacting agents in high dimension* (with J. Haskovec and J. Vybiral), Multiscale Modeling and Simulation, Vol. 81, No. 277, 2012, pp. 419-446

23. *Multilevel preconditioning and adaptive sparse solution of inverse problems* (with S. Dahlke and T. Raasch), Math. Comput., Vol. 81, No. 277, 2012, pp. 419-446

24. *Low rank matrix recovery via iteratively reweighted least squares minimization* (with H. Rauhut and R. Ward), SIAM J. Optim., Vol. 21, No. 4, 2011, pp. 1614-1640

25. *Fluid dynamic description of flocking via Povzner-Boltzmann equation* (with J. Haskovec and G. Toscani), Physica D (nonlinear phenomena), Vol. 240, no. 1, 2011, pp. 21-31

26. *A convergent overlapping domain decomposition method for total variation minimization* (with A. Langer and C.-B. Schönlieb), Numer. Math., Vol. 116, no. 4, 2010, pp. 645-685

27. *A kinetic flocking model with diffusion* (with R. Duan and G. Toscani), Commun. Math. Phys., Vol. 300, no. 1, 2010, pp. 95-145

28. *Asymptotic flocking dynamics for the kinetic Cucker-Smale model* (with J. A. Carrillo, J. Rosado, and G. Toscani), SIAM J. Math. Anal., Vol. 42, no. 1, 2010, pp. 218-236

29. *Iterative thresholding meets free-discontinuity problems* (with R. Ward), Found. Comput. Math., Vol. 10, no. 5, 2010, pp. 527-567

30. *Optimal adaptive computation in the Jaffard algebra and localized frames* (with S. Dahlke and K. Gröchenig), J. Approx. Theory, Vol. 162, no. 1, 2010, pp. 153-185.

31. *Iteratively re-weighted least squares minimization for sparse recovery* (with I. Daubechies, R. DeVore, C. S. Güntürk), Commun. Pure Appl. Math., Vol. 63, no. 1, 2010, pp. 1-38

32. *Subspace correction methods for total variation and ℓ_1-minimization*, (with C.-B. Schönlieb), SIAM J. Numer. Anal., Vol. 47, no. 5, 2009, pp. 3397-3428

33. *The application of joint sparsity and total variation minimization algorithms to a real-life art restoration problem* (with R. Ramlau and G. Teschke), Adv. Comput. Math., Vol. 31, Nos 1-3, 2009, pp. 301-329.

34. *Nonlinear and adaptive frame approximation schemes for elliptic PDEs: theory and numerical experiments* (with S. Dahlke, M. Primbs, T. Raasch, M. Werner), Numerical Methods for Partial Differential Equations, Vol. 25, no. 6, 2009, pp. 1366-1401

35. *Iterative thresholding algorithms* (with H. Rauhut), Appl. Comput. Harmon. Anal., Vol. 25, No. 2, 2008, pp. 187-208.

36. *Adaptive frame methods for nonlinear variational problems* (with M. Charina and C. Conti), Numer. Math., Vol. 109 No. 1, 2008, pp. 45-75.

37. *Accelerated projected gradient method for linear inverse problems with sparsity constraints* (with I. Daubechies and I. Loris), J. Fourier Anal. Appl., Vol. 14, No. 5-6, 2008, pp. 764-792.

38. *Recovery algorithms for vector valued data with joint sparsity constraints* (with H. Rauhut), SIAM J. Numer. Anal., vol. 46, No. 2, 2008, pp. 577-613.

39. *Adaptive iterative thresholding algorithms for magnetoencephalography (MEG)* (with F. Pitolli), J. Comput. Appl. Math., Vol. 221 No. 2, 2008, pp. 386-395

40. *Sampling theorems on bounded domains* (with L. Gori), J. Comput. Appl. Math., Vol. 221 No. 2, 2008, pp. 376-385.

41. *Generalized coorbit theory, Banach frames, and the relation to α-modulation spaces* (with S. Dahlke, H. Rauhut, G. Steidl, and G. Teschke), Proc. London Math. Soc., Vol. 6 No. 2, 2008, pp. 464-506.

42. *Adaptive frame methods for elliptic operator equations: the steepest descent approach* (with S. Dahlke, T. Raasch, R. Stevenson and M. Werner), IMA J. Numer. Anal., Vol. 27 No. 4, 2007, pp. 717-740

43. *Banach frames for α-modulation spaces*, Appl. Comp. Harmon. Anal., Vol. 22, No. 2, 2007, pp. 157-175.

45. *Adaptive frame methods for elliptic operator equations*, (with S. Dahlke and T. Raasch) Adv. Comp. Math., Vol. 27 No. 1, 2007, pp. 2763

45. *On some stability results of localized atomic decompositions*, Rend. Mat. Appl., No. 26, 2006, pp. 315-325.

46. *Nonlinear projection recovery in digital inpainting for color image restoration*, J. Math. Imaging Vis. Vol. 24, No. 3, 2006, pp. 359-373.

47. *Flexible Gabor-wavelet atomic decompositions for L^2 Sobolev spaces* (with H. G. Feichtinger), Ann. Mat. Pura Appl. Vol. 185(4), No. 1, 2006, pp. 105-131.

48. *Continuous frames, function spaces, and the discretization problem* (with H. Rauhut), J. Fourier Anal. Appl., Vol. 11, No. 3, 2005, pp. 245-287.

49. *Intrinsic localization of frames* (with K. Gröchenig), Constr. Approx., Vol. 22, No. 3, 2005, pp. 395-415.

50. *Fast homogenization algorithm based on asymptotic theory and multiscale schemes* (with M. Morandi Cecchi), Numer. Algorithms, Vol. 40, No. 2, 2005, pp. 171-186

51. *Fast, robust, and efficient 2D pattern recognition for re-assembling fragmented images* (with D. Toniolo), Pattern Recognition, Vol. 38, No. 11, 2005, pp. 2074-2087.

52. *Quasi-orthogonal decompositions of structured frames*, J. Math. Anal. Appl. Vol. 289, No. 1, 2004, pp. 180-199.

53. *Function spaces inclusions and rate of convergence of Riemann-type sums in numerical integration*, Numer. Funct. Anal. Opt., Vol. 24, Nos. 1 & 2, 2003, pp. 45-57.

3.8.3 Conference papers

54. *Anisotropic adaptive meshes for brittle fractures: parameter sensitivity* (with M. Artina, S. Micheletti, and S. Perotto), ENUMATH conference proceeding, submitted, November 2013, pp. 8

55. *Sparse control of force field dynamics* (with M. Bongini, F. Fröhlich, and L. Haghverdi), Proceedings of the International Conference on NETwork Games COntrol and oPtimization 2014, ISBN: 978-88-8443-574-3, November 2014, pp. 6

56. *Mathematical methods for spectral image reconstruction* (with W. Baatz and J. Haskovec), Proceedings of the workshop Scientific Computing for Cultural Heritage, Heidelberg Germany, November 2009.

57. *Binary based fresco restoration* (with W. Baatz, P. Markowich, and C.-B. Schnlieb), Proceedings of the conference Bridge 2009: Mathematics, Music, Art, Architecture, Culture, pp. 337-338

58. *Compressive Algorithms. Adaptive Solutions of PDE's and Variational Problems*, invited lecture for the IMA Mathematics of Surfaces XIII conference, 2009

59. *Electric current density imaging via an accelerated iterative algorithm with joint sparsity constraints* (with G. Bretti and F. Pitolli), SPARS'09 - Signal Processing with Adaptive Sparse Structured Representations (2009)

60. *Domain decomposition methods for compressed sensing* (with A. Langer and C.-B. Schönlieb), Proc. Int. Conf. SampTA09, Marseilles, 2009

61. *Mathematics enters the picture*, Proceedings of the workshop MathKnow 2008, Springer, 2009

62. *Iteratively re-weighted least squares minimization: proof of faster than linear rate for sparse recovery* (with I. Daubechies, R. DeVore, and C. S. Güntürk), Information Sciences and Systems, 2008. CISS 2008. 42nd Annual Conference, pp. 26-29

63. *Inpainting of ancient Austrian frescoes* (with W. Baatz, C.-B. Schönlieb, and P. Markowich), Conference proceedings of Bridges 2008, Leeuwarden 2008, pp.150-156.

64. *Faithful recovery of vector valued functions from incomplete data. Recolorization and art restoration*, Lecture Notes in Computer Science, Volume 4485/2007, Proceedings of the First International Conference on Scale Space Methods and Variational Methods in Computer Vision (Sgallari, Fiorella; Murli, Almerico; Paragios, Nikos Eds.), 2007, pp. 116-127.

65. *On elementary sampling theorems on bounded domains* (with L. Gori), Proc. Int. Conf. ICNAAM 2005 (Ed. Simos Theodore S. et al.), Weinheim: Wiley-VHC, pp. 619-623.

66. *Building a bridge between Gabor and wavelet worlds*, Mini-Workshop: Wavelets and Frames, Feb. 15-21 2004, Oberwolfach Reports, 1(1), 2004, pp. 490-494.

67. *Decompositions of Hilbert spaces: local construction of global frames*, Proc. Int. Conf. Constructive Function theory 2002, Varna, DARBA, Sofia, 2003, pp. 275-281.

3.8.4 Book chapters

68. *Rotation Invariance in Exemplar-based Image Inpainting* (with M. Eller), submitted, book chapter for the Radon Series on Computational and Applied Mathematics, pp. 80

69. *Particle, Kinetic, Hydrodynamic Models of Swarming* (with J. A. Carrillo, G. Toscani, and F. Vecil), within the book "Mathematical modeling of collective behavior in socio-economic and life-sciences", Birkhäuser (in preparation, Eds. Lorenzo Pareschi, Giovanni Naldi, and Giuseppe Toscani), 2010, 34 pp.

70. *Numerical Methods for Sparse Recovery* within the book "Theoretical Foundations and Numerical Methods for Sparse Recovery", Radon Series in Applied and Computational Mathematics, de Gruyter (Ed. Massimo Fornasier), 2010, 110 pp.

71. *Compressive Sensing* (with Holger Rauhut) in the "Handbook of Mathematical Methods in Imaging", Springer 2010 (`http://refworks.springer.com/mrw/index.php?id=2420`)

72. *Il Progetto Mantegna: storia e risultati* (Italian) (with R. Cazzato, G. Costa, A. Dal Farra, D. Toniolo, D. Tosato, C. Zanuso), in Andrea Mantegna. La Cappella Ovetari a Padova (Anna Maria Spiazzi, Alberta De Nicolò Salmazo, Domenico Toniolo eds.), Skira, 2006.

73. *Computer-based re-composition of the frescoes in the Ovetari Chapel in the Church of the Eremitani in Padua. Methodology and initial results*, (Italian/English) (with D. Toniolo), in "Mantegna nella chiesa degli Eremitani a Padova. Il recupero possibile" Ed. Skira, May 2003, pp. 15-23.

3.8.5 Books

74. *Theoretical Foundations and Numerical Methods for Sparse Recovery*, Radon Series in Applied and Computational Mathematics, de Gruyter, July 2010
(`http://www.degruyter.de/cont/fb/ma/detail.cfm?isbn=9783110226140&sel=pi`)

3.8.6 Dissertations

75. *Compressive Algorithms. Adaptive Solutions of PDE's and Variational Problems*, Habilitationsschrift, Faculty of Mathematics, University of Vienna, January 7, 2008, 426 pp.

76. *Constructive Methods for Numerical Applications in Signal Processing and Homogenization Problems*, doctoral thesis, University of Padua, Dec. 2002.

77. *Un metodo per la rappresentazione e il confronto di immagini a meno di rotazioni. Un contributo alla ricostruzione virtuale degli affreschi della Chiesa degli Eremitani in Padova* (Italian), Laurea thesis, Department of Pure and Applied Mathematics, University of Padua, Oct. 1999.

3.8.7 Lecture notes

78. *Introduzione all'analisi armonica numerica* (Italian), Lecture Notes, 2007 112 pp.

79. *Numerik gewöhnlicher Differentialgleichungen* (German), Lecture Notes, 2013 106 pp.

3.8.8 Miscellaneous

80. *Proposta per una anastilosi informatica degli affreschi della Capella Ovetari nella Chiesa degli Eremitani in Padova* (Italian) (with C. Fanin and D. Toniolo), technical report DFPD 02/EI/31, Department of Physics "G. Galilei", University of Padua.

81. *Compactly supported circular harmonics: fast, robust and efficient 2D pattern recognition*, (with D. Toniolo), technical report DFPD 02/EI/32, Department of Physics "G. Galilei", University of Padua.

82. *Una discussione matematica sulla rappresentazione ed il confronto di immagini a meno di rotazioni. Un contributo alla ricostruzione informatica degli affreschi nella Chiesa degli Eremitani in Padova* (Italian), technical report DFPD 99/EI/24, Department of Physics "G. Galilei", University of Padua.

3.9 Oral presentations

3.9.1 Plenary lectures

1. Sparse mean field optimal control, Conference "New Horizons on Optimal Control", Sept. 7-9, 2014

2. Random dimensionality reduction and sparse recovery algorithms, Conference of the Italian Society in Applied and Industrial Mathematics, June 27, 2012

3. Inverse free-discontinuity problems and iterative thresholding algorithms, "Mathematics and Image Analysis 2012", Institut Henri Poincaré, Paris, France, 16-18 January 2012

4. Compressive algorithms. Adaptive solutions of PDE's and variational problems, Int. Conf. Surfaces XIII, University of York, UK, September 7-9, 2009.

5. Compressive algorithms. Multilevel preconditioning and convergence rates, Int. Conf. Modern Methods of Time-Frequency Analysis, Strobl, Austria, June 15-20, 2009.

6. Variational principles and compressive algorithms, Int. Conf. "Mathematical Methods for Curves and Surfaces", Toensberg, Norway, June 26-July 1, 2008.

7. Mathematical imaging and visual art restoration, "SCCH 2007: Scientific Computing and the Cultural Heritage IWR Workshop", Heidelberger Akademie der Wissenschaften, Heidelberg, Germany, November 12-14, 2007.

3.9.2 Colloquia

8. Sparse mean field optimal control, Department of Mathematics, Technical University of Berlin, May 5, 2015

9. Sparse mean field optimal control, Kolloquium, Department of Mathematics, University of Mainz, April 30, 2015

10. Mathematics reconstructing art, Katholische Universität Eichstätt, Jan. 21 2015

11. The virtual restoration of Mantegna's frescoes in Padua, Department of Mathematics, University of Würzburg, May 23 2014

12. Un Mantegna restaurato tra matematica e nuove tecnologie, Department of Mathematics, University of Padova, May 13 2014

13. Sparse mean field optimal control, Department of Mathematics, University of Oslo, March 20, 2014

14. Consistency of probability measure quantization by means of power repulsion-attraction potentials, Department of Mathematics, University of Pisa, 17-20 Feb 2014

15. Sparse stabilization and control of consensus models, Kolloquium, Department of Mathematics, University of Göttingen, Jan 23 2013

16. Random dimensionality reduction and sparse recovery algorithms, Kolloquium der Hurwitz-Gesellschaft, Antrittsvorlesung, Fakultät f. Mathematik, TUM, July 4, 2012

17. Mathematics enters the picture: Mantegna's frescoes in Padua and their computer assisted restoration, Department of Mathematics, University of Torino, May 23, 2012

18.. Random dimensionality reduction and sparse recovery algorithms, Lezione Lagrangiana, Department of Mathematics, University of Torino, May 22, 2012

19. Analysis and simulation of particle systems and kinetic equations modeling interacting agents in high dimension, Department of Mathematics, Technical University of Berlin, Apr. 18, 2012

20. Analysis and simulation of particle systems and kinetic equations modeling interacting agents in high dimension, Department of Mathematics, University of Vienna, Nov. 11 2011

21. Compression, adaptivity, multiscale, and decompositions in the numerical solutions of Partial Differential Equations, Department of Mathematics, University of Heidelberg, Jan. 27 2011

22. Compression, adaptivity, multiscale, and decompositions in the numerical solutions of Partial Differential Equations, Faculty of Mathematics, University of Vienna, Oct. 7, 2010

23. Mathematics Enters the Picture. (The restoration of the Mantegna's frescoes in Padua), Kunsthistorische Gesellschaft, Institut für Kunstgeschichte , University of Vienna, May 26, 2010.

24. Compressed numerical methods for well-posed and degenerate elliptic PDEs, Department of Mathematics, Technical University of Munich, May 20, 2010

25. Innovative Sparse Recovery Methods for PDEs, Mathematical Colloquium, Department of Mathematics, University of Osnabrück, May 12, 2010

26. Compressed numerical methods for well-posed and degenerate elliptic PDEs, Seminar for Applied Mathematics, ETH-Zürich, April 12, 2010

27. Compressed numerical methods for well-posed and degenerate elliptic PDEs, Department of Mathematics, University of Basel, November 19 2009

28. Compressed numerical methods for well-posed and degenerate elliptic PDEs, Institut für Numerische und Angewandte Mathematik, University of Göttingen, October 31 2009

29. Compressed numerical methods for well-posed and degenerate elliptic PDEs, Institute for Numerical Simulation, University of Bonn, October 29, 2009

30. Sparse approximation and optimization in high dimensions, Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany, June 23, 2009.

31. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Department of Mathematics and Computer Sciences, Technical University of Munich, Germany, June 2 2009.

32. Sparse Approximation and Optimization in High Dimensions, Faculty of Mathematics, University of Vienna, Austria, May 13 2009.

33. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Center of Mathematics for Applications, University of Oslo, Norway, Apr. 16. 2009.

34. Innovative theories, methods, and applications in signal and image processing, IDIAP-EPFL, Lausanne, Switzerland, March 18, 2009

35. Variational principles and compressive algorithms, Department of Mathematics, University of Regensburg, Germany, October 1, 2008.

36. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Seminar for Applied Mathematics, ETH-Zurich, Dec. 17. 2008.

37. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Department of Mathematics, University of Leeds, UK, June 19, 2008.

38. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Department of Mathematics, University of Rostock, Germany, June 18, 2008.

39. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, Habilitationskolloquium, Faculty of Mathematics, University of Vienna, Austria, June 4 2008.

40. Faithful recovery of vector valued functions from incomplete data. Recolorization and art restoration, Colloquium, Institut für Numerische und Angewandte Mathematik (NAM), Georg-August-Universität Göttingen, Göttingen, Germany, Dec. 19 2006.

41. Faithful recovery of vector valued functions from incomplete data. Recolorization and art restoration, Colloquium, Program in Applied and Computational Mathematics, Princeton University, Princeton, U.S.A., Nov. 20 2006.

3.9.3 Invited seminars at universities and research institutions

42. Consistency of probability measure quantization by means of power repulsion-attraction potentials, Department of Mathematics, RWTH Aachen, June 16-17, 2014

43. Introduction to compressed sensing, Department of Mathematics, University of Oslo, March 21, 2014

44. Linearly constrained evolutions of critical points and adaptive anisotropic remeshing in brittle fracture simulation, Department of Mathematics, Technical University of Berlin, May 5, 2015

45. The projection method for dynamical systems and kinetic equations modelling interacting agents in high-dimension, Dept. Math., Duke University, Sept. 2011.

46. The projection method for dynamical systems and kinetic equations modelling interacting agents in high-dimension, Depart. Math., University of Padua, Sept. 2011.

47. Particle systems and kinetic equations modeling interacting agents in high-dimension, Hausdorff Center for Mathematics, University of Bonn, June 2010

48. Mathematics enters the picture. An Italian touch on mathematical imaging, Center for Approximation Theory Seminar, Texas A&M University, U.S.A., Nov. 2009

49. Efficient numerical methods for L_1-minimization, Numerical Analysis Seminar, Texas A&M University, U.S.A., Oct. 2009

50. Special seminar: A Closer Look to Compressed Sensing, Sparse Recovery, and Generalizations, Department of Mathematics and Scientific Computing, University of Graz, Feb. 27, 2009

51. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, , Department of Mathematics and Scientific Computing, University of Graz, Feb. 26, 2009

52. Wavelets, joint sparsity, and image processing, FNRS Contact Group "Wavelets and applications", Universit libre de Bruxelles, Jan. 13, 2009.

53. Mathematics enters the picture, Department of Electronics and Informatics (ETRO), Vrije Universiteit Brussel, Jan. 13, 2009.

54. Mathematics enters the picture, Fraunhofer ITWM Bildverarbeitungslsungen, Kaiserslautern, Jan. 12, 2009.

55. A kinetic model for flocking, Hong Kong City University, Dec. 11, 2008.

56. Compressive algorithms, variational principles, and free-discontinuity problems, Department of Mathematics, University of Rome "Tor Vergata", September 23, 2008.

57. ℓ_1-minimization in compressive algorithms for PDEs and variational problems, Deparment of Mathematics, Universtiy of Pavia, Italy, May. 22, 2008.

58. L'applicazione, architetto della matematica. La matematica, architetto di nuove applicazioni (The application, architect of mathematics. Mathematics, architect of new applications), Faculty of Engineering, University of Bologna, May 20, 2008.

59. Compressive Algorithms. Adaptive Solutions of PDEs and Variational Problems, (invited seminar for an Associate Professorship in Numerical Analysis), Institute for Numerical Simulation, University of Bonn, Germany, May 16 2008.

60. A comparison of joint sparsity and total variation minimization algorithms in a real-life art restoration problem, Centre de Mathematiques et de Leur Applications, CNRS and École Normale Supriore de Cachan, France, May 15, 2008.

61. Domain decomposition methods for singular PDEs and applications in image processing, Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie, France, May 13, 2008.

62. ℓ_1-minimization in compressive algorithms for PDEs and variational problems, Department of Mathematics, Universtiy of Milano, Italy, Apr. 22, 2008.

63. Iterative thresholding algorithms and acceleration methods, Department of Mathematics, Philipps-University of Marburg, Germany, Mar. 25, 2008.

64. Compressive algorithms, Numerical Analysis seminar, Department of Applied Mathematics and Theoretical Physics, Center of Mathematical Sciences (CMS) of the University of Cambridge, UK, Mar. 6, 2008.

65. Iterative re-weighted least square algorithms for compressed sensing, School of Mathematics, University of Edinburgh, UK, Mar. 3 2008.

66. Compressive algorithms, Department of Mathematics, University of York, UK, Feb. 29 2008.

67. Compressive algorithms and variational problems, Department of Mathematics, University of Trieste, Italy, Feb. 19, 2008

68. PDE methods in image processing, PDE group seminar, Radon Institute for Computational and Applied Mathematics, Linz, Austria, Jan. 28 2008.

69. Iterative thresholding algorithms for inverse problems with sparsity constraints, Harmonic Analysis and Signal Processing Seminar, Courant Institute of Mathematical Sciences, NY University, USA, April 30, 2007.

70. A unified approach to iterative thresholding algorithms for sparse recovery, Norbert Wiener Center Seminar, University of Maryland, College Park, USA, April 12, 2007.

71. Variational calculus, wavelets, and image processing, Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, Feb. 7 2006.

72. Tecniche di ricostruzione di segnali e di immagini digitali con metodi di interpolazione e variazionali con vincoli, Workshop "Modelli differenziali e tecniche numeriche nel trattamento delle immagini", Department of Mathematics "Castelnuovo", University of Rome "La Sapienza", Apr. 15 2004.

73. Frame expansions for numerical analysis and signal/image processing. Applications in image pattern recognition and real world examples, "Graduiertenkolleg Angewandte Algorithmische Mathematik", Technische Universitaet Muenchen, Zentrum Mathematik, Nov. 3 2003.

74. Introduzione alla teoria degli spazi coorbita quale interpretazione unificata delle decomposizioni di Gabor e wavelets e possibili estensioni, Department of Mathematics, University Bicocca in Milano, Jun. 10 2002.

75. Analisi tempo-frequenza e algoritmi di pattern matching nel 2D, Deparment of Mathematics, University of Verona, Jun. 5 2002.

76. Gabor-wavelet transform and discrete frames, Department of Mathematics, University of Udine, Oct. 19 2001.

77. Local construction of global frames and applications, Department of Mathematics, Technical University of Denmark, Lyngby, Denmark, August 6 2001.

78. Flexible Gabor-wavelet transforms and applications in PDEs and signal processing, Department of Pure and Applied Mathematics, University of Padua, July 12 2001.

79. Un metodo per la rappresentazione ed il confronto di immagini a meno di rotazioni. Un contributo alla ricostruzione virtuale degli affreschi della Chiesa degli Eremitani in Padova, Department of Pure and Applied Mathematics, University of Padua, March 13 2000.

3.9.4 Invited talks at conferences and workshops

80. Mean-field sparse optimal control, Winter excursion TMP, Bayrischzell, Sept. 2, 2015

81. Linearly constrained evolutions of critical points and adaptive anisotropic remeshing in brittle fracture simulation, Workshop "New Discretization Methods for the Numerical Approximation of PDEs", Oberwolfach Jan 14-16 2015

82. Consistency of probability measure quantization by means of power repulsion-attraction potentials, Conference "Foundations of Computational Mathematics", Montevideo, Dec. 8-15, 2014

83. Consistency of probability measure quantization by means of power repulsion-attraction potentials, SFB-Meeting "Discretization in Geometry and Dynamics", Sept. 24-26 2014

84. Consistency of probability measure quantization by means of power repulsion-attraction potentials, Workshop "Time-Frequency Analysis", Erwin Schrödinger Institute, Vienna, Jan 12-15 2014

85. Quasilinear compressed sensing, Matheon Workshop CSA 2013, Dec. 11-13 2013

86. Sparse mean-field optimal control, Workshop "Mean field games and related topics - 2", University of Padova, Sept. 4-6 2013

87. Sparse stabilization and optimal control of consensus models, Oberwolfach conference "Multiscale and High-Dimensional Problems", July 29 - Aug 3, 2013

88. Linearly constrained nonsmooth and nonconvex minimization, Conference "New Computational Methods for Inverse Problems", Ecole Normale Superieur de Cachan, Paris

89. Sparse stabilization and optimal control of consensus models, Workshop in honor of the 60th birthday of Heinz Engl and of the 10 years of RICAM, Johann Radon Institute, March 26-29 2013

90. Sparse Stabilization and Optimal Control of the Cucker and Smale System, Workshop "Sparse Representations of Functions", Technical University of Berlin, Dec. 9-11 2012

91. Sparse stabilization and optimal control of the Cucker-Smale model, Workshop: "Algorithms and Complexity for Continuous Problems", Dagstuhl, Sep. 23-28 2012

92. Learning functions of few arbitrary linear parameters in high dimension, Workshop "Probabilistic techniques and algorithms", , University of Texas in Austin, Apr. 7, 2012

93. Variational dithering, kinetic consistency, and a new deconvolution method, Symposium on Total Variation, Technical University of Munich, Feb. 2, 2012

94. Particle systems and kinetic equations modeling interacting agents in high-dimension, Workshop "Functional Inequalities and PDE in the Life Sciences", Université Paris Dauphine, Jan. 12-13, 2012

95.. Particle systems and kinetic equations modeling interacting agents in high-dimension, Workshop "Numerical Analysis of Multiscale Problems and Stochastic Modelling", RICAM, Linz, Dec. 16, 2011

96. Domain decomposition methods for total variation minimization, Int. Conf. on Scientific Computing, Cagliari, Oct. 3-9, 2011

97. Inverse free-discontinuity problems and iterative thresholding algorithms, Modern Methods and Applications of the Calculus of Variations: Image Processing - Part I of V, ICIAM, Vancouver, July 19, 2011

98. Mathematics enters the picture: Mantegna's frescoes in Padua and their computer assisted restoration, Computational Methods for the Cultural Heritage, ICIAM, Vancouver, July 19, 2011

99. Learning functions of few arbitrary linear parameters in high dimension, Found. Comput. Math., Budapest, July 6, 2011

100. New applications of compression in numerical simulation in high dimension, From Abstract to Computational Harmonic Analysis, Strobl, June 13 - 19, 2011

101. Particle systems and kinetic equations modeling interacting agents in high-dimension, Banff, Mar. 5 - 12, 2011

102. Particle systems and kinetic equations modeling interacting agents in high-dimension, Dagstuhl, Jan. 30 - Feb. 04, 2011

103. Particle systems and kinetic equations modeling interacting agents in high-dimension, PDEs in kinetic theories: kinetic description of biological models, ICMS, Edinburgh, Nov. 9, 2010

104. Inverse free-discontinuity problems and iterative thresholding algorithms, Emerging Topics in Dynamical Systems and Partial Differential Equations - DSPDE's, Barcelona, May 31 - June 4 2010

105. Inverse free-discontinuity problems and iterative thresholding algorithms, SIAM Conference on Imaging Science (IS10), Chicago, U.S.A., April 12-14, 2010

106. Subspace correction methods for ℓ_1 and total variation minimization, SIAM Conference on Imaging Science (IS10), Chicago, U.S.A., April 12-14, 2010

107. Inverse free-discontinuity problems and iterative thresholding algorithms, AIP 2009, Vienna, July 21, 2009

108. Multilevel preconditioning in inverse problems with sparsity constraints, AIP 2009, Vienna, July 21, 2009

109. Inverse free-discontinuity problems and iterative thresholding algorithms EPSRC Symposium Capstone, Warwick Mathematical Institute, UK, June 30 – July 3, 2009.

110. Iterative thresholding: domain decompositions, multilevel preconditioning, and adaptivity, Tomography with Wavelets, Observatoire Océanologique, Villefranche-sur-Mer, France, May 28-30 2009.

111. A kinetic model of flocking, Workshop on Modern Topics in Nonlinear Kinetic Equations, University of Cambridge, UK, April 20-22, 2008.

112. Domain decomposition methods for total variation minimization, The Third International Conference on Scientific Computing and Partial Differential Equations at Hong Kong Baptist University, Hong Kong, Dec. 8-12, 2008.

113. Subspace decomposition method for very large scale sparse optimizations, Structured Decompositions and Efficient Algorithms, Dagstuhl Seminar, Germany, Nov. 30 – Dec. 5, 2008.

114. A kinetic model for flocking, Kinetic modelling for socio-economic and related problems, Vigevano, Italy, November 27-29, 2008.

115. Hot topics Workshop: Multi-Manifold Data Modeling and Applications, Institute for Mathematics and its Applications (IMA), University of Minnesota, U.S.A., October 27-30 2008.

116. Modern harmonic analysis and PDEs methods for visual art restoration, Modelling and Numerics for Monuments Conservation, University of Orleans, France, Sept. 4-5 2008.

117. Image and Signal Processing, Foundations of Computational Mathematics (FoCM08), Hong-Kong, China, Jun. 24-26, 2008.

118. Modern methods of harmonic analysis and PDEs in mathematical imaging, Mathknow08 - Mathematics, Applied Sciences, and Real Life, MOX - Technical University of Milan, Italy, May 23, 2008.

119. Inverse problems and sparsity measures, Minisymposium Inverse Problems with Sparsity Constraints, GAMM 2008, Bremen, Germany, Mar. 31 – Apr. 4, 2008.

120. Compressive algorithms: beyond adaptive wavelet methods in PDEs, Workshop on "Adaptive Numerical Methods for PDEs", Wolfgang Pauli Institute, Vienna, Austria, Jan. 21-25 2008.

121. Mathematical tools in signal processing and sparse optimization, Co. ESTECO S.r.l. www.esteco.com, Area Science Park, Trieste, Italy, December 14, 2007.

122. Evaluation of the project "Mathematical Methods for Image Analysis and Processing in the Visual Arts", WWTF, Vienna, Austria, December 5 2007.

123. Mathematics and art restoration, Institut für Konservierung und Restaurierung, Akademie der bildenden Künste Wien, Vienna, Austria, November 9 2007.

124. von Neumann Symposium "Sparse Representation and High-Dimensional Geometry", July 8-12, 2007

125. Recovery algorithms for vector valued data with joint sparsity constraints, Sparse Approximation Workshop, Nov. 10-12 2006, Princeton University, USA.

126. Frame adaptive methods for signal processing and operator equations, Workshop "Time-frequency analysis and stationary filtering", BIRS, Banff, Canada, Sept. 24-29 2005.

127. Some applications of localization of frame theory, Mathematisches Forschungsinstitut Oberwolfach, Feb. 18 2004.

128. Proposta per una anastilosi informatica degli affreschi della Cappella Ovetari nella Chiesa degli Eremitani in Padova, Consiglio di amministrazione della Fondazione Cassa di Risparmio di Padova e Rovigo, July 21 2000.

3.9.5 Contributed conference presentations

129. Subspace correction methods in sparse optimization, Workshop "Inverse Problems in Medical Imaging", Universitätszentrum Obergurgl, Austria, Jan. 22-27 2008.

130. Accelerated iterative thresholding algorithms, Conference on Applied Inverse Problems 2007: Theoretical and Computational Aspects, June 25-29, 2007.

131. Sparse recovery, free-discontinuity problems and image inpainting, Workshop on "PDEs and Variational Tools in Image Inpainting", Wolfgang Pauli Institute, Vienna, Austria, June 11-13, 2007.

132. Faithful recovery of vector valued functions from incomplete data. Recolorization and art restoration, Scale Space Variational Methods 2007, Ischia, Italy, May 30 - June 2, 2007.

133. Fast reconstruction algorithm for sparse multivariate and vector valued data, 1st Dolomites workshop on constructive approximation and applications, Sept. 8-12 2006, Alba di Canazei, Italia.

134. Variational methods, inpainting, and art restoration, Int. Conf. "Nonlinear PDEs: Homogenization and Kinetic Equations", Vienna, Austria, June 26-30 2006.

135 Linear inverse problems with joint sparsity constraints, Mini-workshop "Sparsity and Applications", Radon Institute for Computational and Applied Mathematics (RICAM), Linz, Austria, June 21 2006.

136. Fast algorithms for inverse problems with joint sparsity constraints, Int. Conf. Recent Progress in Spline and Wavelet Approximation, University of Rome La Sapienza, June 14-16 2006.

137. Metodi di campionamento non uniforme e variazionali per il restauro di immagini, Convegno nazionale GNCS, Dipartimento di Matematica F. Enriques, University of Milano, 14-16 febbraio 2006.

138. Adaptive algorithms. Mobile digital signal transmission, Int. Conf. MathMod, Vienna, Austria, February 8-10 2006.

139. On elementary sampling theorems on bounded domains, Int. Conf. ICNAAM 2005, Rodos, Greece, Sept. 16-20 2005.

140. Int. Conf. SampTA2005, Sampling Theory and Applications, Samsun, Turkey, July 10-15 2005.

141. Frames, greedy algorithms, and operator equations, Special Semester "Modern Methods of Time-Frequency Analysis", Third Workshop "Nonorthogonal expansions and greedy algorithms", Erwin Schroedinger Institute, Vienna, Austria, June 6-11 2005.

142. Frames, greedy algorithms, and operator equations, Int. Conf. "Modern Methods of Time-Frequency Analysis", Strobl, Austria, May 23-28 2005.

143. Image processing, greedy algorithms, and operator equations, HASSIP midterm meeting, Vienna, Austria, April 26-27 2005.

144. Adaptive frame methods for magnetohydrodynamic flows, MASCOT04 4th Meeting on Applied Scientific Computing and Tools (Grid generation, approximation, and visualization), Florence, Italy, Nov. 25-27 2004.

145. Frame decompositions in image processing: applications in art restoration, SIMAI 2004, Isola di San Servolo, Venice, Italy, Sept. 20-24 2004.

146. Construction of smooth (wavelet) frames and their applications, Int. Conf. Classical and New Approximation Spaces: Theory and Applications, Rome, Italy, Feb. 5-7 2004. 1.Interpolation of Banach spaces by means of Gabor-wavelet frames, Int. Conf. Wavelets and Splines, S. Petersburg, Russia, July 2-8 2003.

147. Flexible Gabor-wavelets decompositions for L2 Sobolev spaces, Int. Conf. SampTA2003, Sampling Theory and Applications, Strobl, Austria, May 2003.

148. Fast registration methods based on local circular harmonic frames and applications to art frescoes restoration, GAMM2003 (Conference of Gesellschaft fuer Angewandte Mathematik und Mechanik e. v. 2003), Abano Terme, Italy, 24-28 March 2003.

149. Fast homogenization algorithm based on asymptotic theory and multiscale schemes, GAMM2003 (Conference of Gesellschaft fuer Angewandte Mathematik und Mechanik e. v. 2003), Abano Terme, Italy, March 24-28 2003.

150. Flexible Gabor-wavelet continuous and discrete frames in alpha-modulation spaces, 2nd Int. Gabor Workshop, Vienna, Austria, Dec. 3-7 2002.

151. Generalized structured frame expansions: a bridge from Gabor to wavelet theory, kick-off meeting of the EU-network RTN HASSIP (Harmonic Analysis and Statistics for Signal and Image Processing) HPRN-CT-2002-00285, Department of Mathematics, University of Provence, Marseille, France, Nov. 14-16 2002.7

152. Un algoritmo di omogeneizzazione veloce basato sulla teoria asintotica e su schemi multiscala, "Convegno nazionale di Analisi Numerica: stato dell'arte", Arcavacata di Rende, University of Calabria, Sept. 26-28 2002.

153. Decompositions of Hilbert spaces: local construction of global frames, Int. Conf. Constructive Function Theory, Varna, Bulgaria, June 19-23 2002.

3.9.6 Invited public lectures

154. Mathematics reconstructing Art, at the Nasher Museum of Art at Duke University, Oct. 11, 2012

155. Mathematics Enters the Picture, Symposium "Computational Mathematics: The Quiet Invaders", Vienna, Oct. 23, 2012

156. Mathematics Enters the Picture - The Restoration of Mantegna's Frescoes in Padua, öffentlicher Vortrag im Rahmen der Klassensitzung der mathematisch-naturwissenschaftlichen Klasse der ÖAW, October 15 2010.

157. Marie Curie International Fellowships, workshop on PEOPLE 4 YOU, BMWF – neue Medienräume, Vienna, Austria, May 13 2009.

158. Il Progetto Mantegna a Padova (The Mantegna Project in Padua), Conferenza Matematica e Cultura 2009, Auditorium Santa Margherita, University Ca Foscari of Venice, March 27, 2009.

159. Mathematics enters the picture, Interdisziplinäres Dialogforum (ID) – Kick-off, Senatssaal, University of Vienna, Dec. 4, 2008.

160. Matematica e applicazioni allarte e alla tecnologia (Mathematics and applications in art and technology), presentation of the book "Matematici al lavoro" (Mathematicians at work), Department of Mathematics, University of Milano, Italy, Apr. 22, 2008.

161. Matematica e Arte (Mathematics and Art), Istituto Comprensivo di Correzzola, Comune di Candiana, Candiana, Italy, December 15, 2007.

162. Marie Curie Outgoing International Fellowship, workshop on PEOPLE & IDEAS - Projekte im 7. EU-Rahmenprogramm, Österreichische Akademie der Wissenschaften, Vienna, Austria, December 7 2007.

163. Il "Progetto Mantegna" a Padova e Sviluppi (The Mantegna Project in Padua and Developments), University for Adult People, Belluno, Italy, December 21 2006.

164. Presentazione nazionale del "Progetto Mantegna" (National presentation of the Mantegna Project), Salone Internazionale del Restauro, Fiera di Ferrara, Italy, Mar. 29 2001.

3.10 Teaching

3.10.1 Invited short courses

- From Sparse Optimization to Sparse Optimal Control, 10 hour Doctoral course, University of Padova, June 8-17, 2015
- From Sparse Optimization to Sparse Optimal Control, 10 hour Doctoral course within the IGDK, University of Graz, Apr. 12-22, 2015
- Numerical methods for sparse recovery, 10 hour course, Fields Institute, Toronto, Canada, May 14-16, 2012
- Numerical methods for sparse recovery, 10 hour course, University of Milano, Mar. 12-16, 2012
- Numerical methods for sparse recovery, 5 hour course, Spring School, University of Aveiro, Portugal, Mar. 27 - Apr. 01 2011
- Numerical methods for sparse recovery, 5 hour course, Summer School on "Theoretical Foundations and Numerical Methods for Sparse Recovery" held at the Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz - Austria, on August 31 - September 4, 2009
- Sparse recovery algorithms from exact and incomplete data, 6 hour course, Dolomites Research Week on Approximation 2007, Sept. 4-6 2007, University of Verona, Alba di Canazei, Italy.
- Mathematical modelling, 6 hour course, WS07-08 (January 7,14 2008), University of Vienna, Vienna, Austria.

3.10.2 Courses

- SS15: Sabbatical semester
- Case Studies of Mathematical Modeling, WS1415, Technical University of Munich, Germany
- Modeling and Simulation with ODE for MSE, WS1415, Technical University of Munich, Germany
- Numerical Programming 2 (CSE), SS14, Technical University of Munich, Germany
- Case Studies of Mathematical Modeling, WS1314, Technical University of Munich, Germany
- Measure and Integration Theory, WS1314, Technical University of Munich, Germany
- Numerical Analysis of Ordinary Differential Equations, SS13, Technical University of Munich, Germany
- Calculus of Variations on BV functions, WS12/13, Technical University of Munich, Germany
- Numerical methods for sparse recovery, SS12, Technical University of Munich, Germany
- Numerics of differential equations, WS11/12, Technical University of Munich, Germany
- Bounded variation functions and variational problems in imaging, special course, SS11, Technical University of Munich, Germany
- Calculus of variations and geometric measure theory, special course, SS10, University of Vienna, Austria

- Project seminar Discontinuous Galerkin Method for Total Variation minimization attached to the course of Numerical Methods for Elliptic PDEs (Ulrich Langer), SS10, Johannes Kepler University, Linz, Austria
- Inverse problems in mathematical imaging, regular course, WS09-10, University of Padua, Italy
- Project seminar Discontinuous Galerkin Method for Total Variation minimization attached to the course of Numerical Methods for Elliptic PDEs (Ulrich Langer), SS09, Johannes Kepler University, Linz, Austria
- Recent advances in numerical harmonic analysis, regular course, SS08, University of Padua, Italy
- Variational methods for free-discontinuity problems and sparse recovery, special course, WS07-08, Johannes Kepler University, Linz, Austria
- Recent advances in numerical harmonic analysis, regular course, SS07, University of Padua, Italy
- Numerical analysis laboratory, assistant, SS06, University of Rome "La Sapienza", Italy (large class at Engineering Fac.)
- Numerical analysis laboratory, assistant, SS05, University of Rome "La Sapienza", Italy (large class at Engineering Fac.)
- Mathematics for signal and image processing, regular course, WS03-04, University of Padua, Italy
- Numerical harmonic analysis, regular course, WS02-03, University of Padua, Italy
- Calculus I, assistant, WS99-00, University of Padua, Italy (large class at Engineering Fac.)

3.11 Students

3.11.1 Master students

Johannes Piendl, 2015
Technical University of Munich
Thesis "Characterization of Nonuniquely Distant Points from Smooth Manifolds"
Grades:

Manuel Bergler, 2015
Technical University of Munich
Thesis "Simulation and Control in High-Dimension of Repulsion-Attraction Systems"
Grades:

Christian Kümmerle, 2015
Technical University of Munich
Thesis "Learning Functions in High-Dimension"
Grades:

Martin Eller, September 2013
Technical University of Munich
Thesis "Rotation Invariance in Exemplar-Based Inpainting"
Grades: 1.0

Jan-Christian Hütter, July 2013
Technical University of Munich
Thesis "Minimizers and Gradient Flows of Attraction-Repulsion Functionals with Power Kernels and Their Total Variation Regularization "

Grades: 1.0

Juliane Sigl, April 2013
Technical University of Munich
Thesis “Quasi-linear Compressed Sensing”
Grades: 1.0

Ilaria Patuzzi, February 2010 (co-supervisor Dr. Fabio Marcuzzi)
Laurea in Mathematics, University of Padua, Italy
Thesis (Italian) “Algoritmi di thresholding iterativo e riconoscimento della corrosione”
Grades: magna cum laude

Rocco Cazzato, October 2007 (co-supervisor Prof. Ruggero Frezza)
Laurea in Information Engineering, University of Padua, Italy
Thesis (Italian) “Un metodo per la ricolorazione di immagini e altri strumenti per il restauro - Il Progetto Mantegna e gli affreschi nella chiesa degli Eremitani”
Grades: best grades for an experimental thesis

Giulia Erica Valente, November 2006 (co-supervisor Dr. Fabio Marcuzzi)
Laurea in Mathematics, University of Padua, Italy
Thesis (Italian) “Gabor frames: teoria e algoritmi”
Grades: magna cum laude

3.11.2 Doctoral students

Juliane Sigl
Technical University of Munich
July 2013 –
Thesis “Advances in Compressed Sensing”

Mattia Bongini
Technical University of Munich
Jan. 2013 –
Thesis “Sparse Optimal Control”

Marco Artina
Technical University of Munich
Sept. 2012 –
Thesis “Lagrangian Methods for Constrained Nonconvex Minimizations and Applications in Fracture Mechanics”

Steffen Peter
Technical University of Munich
Apr. 2012 –
Thesis “Exploiting the Sparsity in Remote Sensing for Earth Observation”

Andreas Langer
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
Feb. 2008 – Sept. 2011
Thesis “Subspace Correction and Domain Decomposition Methods for Total Variation Minimization”

Contribution to the supervision of the Ph.D. work of Rachel Ward (advisor Prof. Ingrid Daubechies, Program in Applied and Computational Mathematics, Princeton University, U.S.A.), and Carola-Bibiane Schönlieb (advisor Prof. Peter A. Markowich, Department of Applied Mathematics and Theoretical Physics (DAMTP), Centre for Mathematical Sciences, University of Cambridge, U.K.).

3.11.3 PostDocs

@ TUM

Giacomo Albi (Doctoral studies at the Friedrich-Schiller University of Jena, Germany)
Technical University of Munich
Munich, GERMANY
May 2014 –

Markus Hansen (Doctoral studies at the Friedrich-Schiller University of Jena, Germany)
Technical University of Munich
Munich, GERMANY
Feb. 2014 –

Benjamin Scharf (Doctoral studies at the Friedrich-Schiller University of Jena, Germany)
Technical University of Munich
Munich, GERMANY
Mar. 2013 – Jan. 2015

Analysis of PDE group @ RICAM

Renjun Duan (Doctoral studies at City University Hong Kong)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
October 2008 – September 2012

Massimo Fonte (Doctoral studies at S.I.S.S.A., Trieste, Italy)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
April 2006 – March 2010

Francesco Solombrino (Doctoral studies at S.I.S.S.A., Trieste, Italy)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
November 2011 – Sept. 2013

Francesco Vecil (Doctoral studies at the Autonomous University of Barcelona, Spain)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
October 2008 – September 2009

START Project team (`http://hdsparse.ricam.oeaw.ac.at/`)

Dante Kalise (Doctoral studies at the University of Bregen, Norway)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
May 2013 – Apr. 2014

Jan Haskovec (Doctoral studies at the University of Vienna, Austria)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
July 2009 – April 2012

Yunho Kim (Doctoral studies at UC Los Angeles, U.S.A.)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
July – Sept. 2009

Karin Schnass (Doctoral studies at the Ecole Polytechnique Fédérale de Lausanne, Switzerland)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
January 2010 – June 2012

Jan Vybiral (Doctoral studies at the Friedrich-Schiller University of Jena, Germany)
Johann Radon Institute for Applied and Computational Mathematics, Austrian Academy of Sciences
Linz, AUSTRIA
October 2009 – April 2012

3.12 Approved grants, external projects

DFG-Project – Deutsche Forschungsgemeinschaft
Project title "Information Theory and Recovery Algorithms for Quantized and Distributed Compressed Sensing"
PIs: M. Fornasier and G. Kramer
3 years
Amount 200.000 EUR (the part given to Mathematics, TU-Munich)

DFG-Project – Deutsche Forschungsgemeinschaft, D-A-CH project with RICAM
Project title "Multi-parameter regularization for lifting the curse of dimensionality"
PIs: M. Fornasier, V. Naumova, and S. Pereverzyev
Feb. 2015–Jan. 2018
Amount 200.000 EUR (the part given to TU-Munich)

DAAD – Procope (bilateral project with France)
Project title "Sparse Control of Multiscale Models of Collective Motion"
PIs: M. Fornasier and F. Rossi
Jan. 2014 - Dec. 2015
Amount 9.000 EUR (the part given to TU-Munich)

DFG-Project – Deutsche Forschungsgemeinschaft
Project title "Optimal Adaptive Numerical Methods for p-Poisson Elliptic equations"
PIs: L. Dienig, S. Dahlke, H. Egger, and M. Fornasier
Jun. 2012 - May 2015
Amount 7.200 EUR (the part given to TU-Munich)

ERC-Starting Grant (ERC - European Research Council)
Project title "High-Dimensional Sparse Optimal Control"
PIs: Massimo Fornasier
Dec. 2012 - Nov 2017
Amount 1.123.000 EUR

International Research Training Group IGDK 1754(DFG - Deutsche Forschungsgemeinschaft and FWF - Fonds zur Förderung der wissenschaftlichen Forschung)
Project title "Lagrangian Methods for Constrained Nonconvex Minimizations and Applications in Fracture Mechanics "
PIs: M. Fornasier and K. Kunisch
Mar. 2012 - Feb. 2016
Amount c.a. 270.000 EUR

Munich Aerospace - Fakultät für Luft- und Raumfahrt e.V.
Project title "Sparse Reconstruction and Compressive Sensing for Remote Sensing and Earth Observation"
PIs: R. Bamler, M. Fornasier and X. Zhu
Mar. 2012 - Feb. 2016
Amount 200.000 EUR

START award (FWF - Fonds zur Förderung der wissenschaftlichen Forschung)
Project title "Sparse Approximation and Optimization in High-Dimensions"
PI: M. Fornasier
Apr. 2009 - June. 2015
Amount 1.137.860 EUR

WWTF "Five Senses - Call 2006" (4 years), Project Mathematical Methods for Image Analysis and Processing in Visual Arts
Nov. 2006 - Oct. 2010
PIs: W. Baatz, M. Fornasier, B. Kowanz, P. Markowich
Amount: 400.000 EUR

Marie Curie Outgoing International Fellowship (contract MOIF-CT-2006-039438, 18 months) of the European Commission (6th Framework Programme)
Project "Sparse Approximation for Blind Source Separation"
Oct. 2006 - March 2008
PI: M. Fornasier
Amount: 120.000 EUR

Individual Marie Curie Fellowship (contract MEIF-CT-2004-501018, 2 years) of the European Commission (6th Framework Programme)
Project "Flexible Time-Frequency Decompositions and Adaptive Treatment of Operator Equations by Frames"
May 2004 - April 2006
PI: M. Fornasier
Amount: 130.000 EUR

Mantegna Project www.progettomantegna.it (3 years) Fondazione Cassa di Risparmio di Padova e Rovigo and University of Padua
Oct. 2001 - Sept. 2004
PIs: M. Fornasier and D. Toniolo
Amount: 525.000 EUR

3.13 Other activities

3.13.1 Conference, workshop, meeting organization

- 2016 Co-organization (with M. Maggioni, H. Rauhut, and T. Strohmer) of the Special Trimester Program "Mathematics of Signal Processing", Hausdorff Research Institute for Mathematics, Bonn, Jan.-Apr. 2016
- 2015 Co-organization (with D. Kalise) of the Minisymposium "Modeling and Control of Multi-agent Systems", 27 th IFIP TC7 Conference 2015 on System Modelling and Optimization, Sophia Antipolis, June 29-July 3, 2015
- 2015 Co-organization (with G. Albi) of the Special Session "Mean-field models and control of multi-agent systems", 13th Vienna Workshop on "Optimal Control and Dynamic Games", May 11-16 2015
- 2014 Co-organization (with Boris Vexler) of the Special Session "Sparse optimization and optimal control in dynamical systems and PDEs" at AIMS DSDEA July 7-11, 2014, Madrid
- 2014 Co-organization of the Minisymposium "Multi-Parameter Regularization and High-Dimensional Learning" (with V. Naumova and S. Pereverzyev), SIAM conference on "Uncertainty Quantification", Savannah, March 29 - Apr. 5, 2014
- 2014 Minisymposium "Linear Algebra and Compressed Sensing" at the annual GAMM conference, March 10-14, 2014, Erlangen, Germany.
- 2013 Co-organization (with Philipp Grohs and Rachel Ward) of the Minisymposium "Approximation, compression, and data analysis" at ENUMATH 2013, Lausanne August 26-30, 2013
- 2013 Co-organization (with Hans-Joachim Bungartz, Patrick Dewilde, Markus Hegland, Thomas Huckle, and Miriam Mehl) of the TUM-IAS Workshop on "Novel Numerical Methods - Shifting the Borders of Computability", Munich, July 29 - Aug. 3 2013.
- 2013 Co-organization of the mini-workshop "Compressed Sensing and Applications in Information Theory and Signal Processing" for the initiation of the SPP 1798, Jacobs University Bremen, Jun 26-30, 2013
- 2012 Co-organization of the Workshop "Wavelet methods in scientific computing" (jointly with S. Dahlke), Erwin Schrödinger Institute, Vienna, Nov. 11-18 2012
- 2012 Symposium on Total Variation, (jointly with Daniel Cremers), Technical University of Munich, Feb. 6, 2012
- 2011 Workshop "Numerical Analysis of Multiscale Problems and Stochastic Modelling", (jointly with Ivan G. Graham, Markus Melenk, Robert Scheichl, and Jörg Willems), at the Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz - Austria, December 12-16, 2011
- 2011 Foundations of Computational Mathematics Conference, co-organizer (jointly with Martin Buhmann and Nira Dyn) of the minisymposium "Approximation theory", Budapest
- 2010 Workshop "Sparsity and Computation", co-organizer (jointly with Ronald DeVore and Holger Rauhut), Hausdorff Center for Mathematics Bonn, June 7-11, 2010, Bonn, Germany
- 2010 Minisymposium "Particle and Mean Field Models for Flocking and Swarming" co-organizer (with Alethea Barbaro), Emerging Topics in Dynamical Systems and Partial Differential Equations DSPDEs'10, May 31 - June 4, 2010, Barcelona, Spain
- 2010 GAMM co-organizer (jointly with Micheal Hintermüller) of the session on Mathematical Imaging, March 22-26, 2010, Karlsruhe, Germany

- 2009 Summer School on "Theoretical Foundations and Numerical Methods for Sparse Recovery" held at the Johann Radon Institute for Computational and Applied Mathematics (RICAM), Linz - Austria, on August 31 - September 4, 2009 http://www.ricam.oeaw.ac.at/events/summerschool_2009/ (more than 70 confirmed students from 19 countries)
- 2009 Member of the Technical Program Committee for the Int. Conf. "Signal Processing with Adaptive Sparse/Structured Representations" (SPARS2009), Apr. 7-10 2009, Saint-Malo, France
- 2009 Special session "Sampling and (in)painting" at the Int. Conf. "Sampling Theory and Applications 2009" (SampTA 2009), Centre International de Rencontres Mathematiques (CIRM), May 28-22., 2009, Marseille-Luminy, France
- 2008 Minisymposium "Compressive algorithms for applied inverse problems with sparse solutions", IX SIMAI - Società Italiana di Matematica Applicata e Industriale - Conference, September 15-19, 2008, Rome, Italy
- 2008 Thematic Programme "Applied Analysis and Fast Computation in Phase-Space", September 2008, Wolfgang Pauli Institute, Vienna University, Austria
- 2007 Workshop "PDEs and Variational Tools in Image Inpainting" June 11-12 2007, Wolfgang Pauli Institute, Vienna University, Austria
- 2006 Mini-workshop "Sparsity and Applications", June 21 2006, Johann Radon Institute for Computational and Applied Mathematics (RICAM), Austrian Academy of Sciences, Linz, Austria
- 2006 Int. Conference "Recent Progress in Spline and Wavelet Approximation", June 14-16 2006, Rome, Italy
- 2004 Int. Conference "Classical and New Approximation Spaces: Theory and Applications", Feb. 5-7 2004, Rome, Italy