

# CURRICULUM VITAE

MARCO DONATELLI

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## Personal information

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Phone: +39 031 238 6378  
Date of birth: 12 March 1977  
Place of birth: Firenze, Italy

## Scientific Career

1996–2002: Degree in Computer Science, University of Florence, Italy.  
2002: Fellowship for “Implementation and testing of multigrid methods for structured Interior Point problems”, Department of Computer Science, University of Pisa, Italy.  
2002–2006: Ph.D. in Computational Mathematics, Department of Mathematics, University of Milan, Italy.  
2005–2014: Assistant Professor in Numerical Analysis, University of Insubria.  
since 2014: Associate Professor in Numerical Analysis, University of Insubria.

## Research interests

Numerical analysis and inverse problems, and in particular:

- Large-scale ill-posed problems
- Image deconvolution
- Multigrid methods
- Spectral analysis and preconditioning

## Research Grants

2015 *Numerical Methods for Image Deblurring*, University of Insubria, 19.367 Euro for a post-doc fellowship.  
2014 *Structured Matrices in Image Deblurring*, University of Insubria, 24.209 Euro for a post-doc fellowship.  
2013 National grant of MIUR (Minister of Instruction, University, and Research): PRIN 2012 *Structured Matrices in Signal and Image Processing (SMaSIP)*, 52.000 Euro.

Annual national projects of INDAM (National Institute of High Mathematics):

- 2012 *Preconditioning and multigrid methods for fast computation of accurate solutions*, 6.000 Euro.
- 2011 *Analysis of structures in restoration of images and monuments*, 5.000 Euro.
- 2010 *Young researcher project*, 1.000 Euro.
- 2009 *Young researcher project*, 2.000 Euro.

## Editorial Boards

- since 2014: “Applied Mathematics and Computation” published by Elsevier.
- since 2014: “Electronic Transactions on Numerical Analysis (ETNA)” published by the Kent State University Library.
- since 2012: “Abstract and Applied Analysis” published by Hindawi Publishing Corporation.

## Professional activities

- since 2013: Deputy Coordinator of the Ph.D. program “Computer Science and Computational Mathematics”, University of Insubria, Como.
- since 2006: Teaching of courses on numerical analysis at the Degree in Mathematics. University of Insubria, Como.
- since 2007: Member of scientific committee of the Ph.D. in Computational Mathematics University of Insubria, Como.
- since 2011: Referee for Italian and international research projects (Austria, Belgium, etc.).
- since 2007: Reviewer for Mathematical Reviews (MR).
- since 2005: Referee for international journals: SIAM J. Sci. Comput., SIAM J. Imaging Sci., SIAM J. Matrix Anal. Appl., IMA J. Numer. Anal., Inverse Problems, Appl. Math. Comput., Linear Algebra Appl., BIT, J. Comput. Appl. Math., Appl. Numer. Math., etc.
- since 2003: Member of National Group for Scientific Calcolus (GNCS).
- since 2012: Member “Italian Society of Applied and Industrial Mathematics” (SIMAI).
- since 2013: Member “Society for Industrial and Applied Mathematics” (SIAM).

## Visiting

- February 2016: Hausdorff Research Institute for Mathematics, Bonn, Germany (trimester Mathematics of Signal Processing).
- November 2012: University of Electronic Science and Technology of China, Chengdu, Cina, Prof. Ting-Zhu Huang.
- November 2010: Institute of Informatics, Technische Universität München, Germania, Prof. Thomas Huckle.
- June 2008: Institute of Mathematics, University of Mainz, Germania, Prof. Martin Hanke-Bourgeois.
- April 2006: Department of Mathematics and Computer Science, Emory University, Atlanta, USA, Prof. James G. Nagy.
- August 2003: Institute for Pure and Applied Mathematics (IPAM), UCLA, Los Angeles, CA USA, Prof. Tony Chan.

## Organization of workshops and special sessions

- WORKSHOP:
  - 14-18 Marzo 2016: *Workshop on Structured Matrix Computations with Applications*, Tsinghua Sanya International Mathematics Forum (TSIMF), China.
  - June 6–8, 2012: *When Probability Meets Computation*, Varese, Italia.
  - March 3–4 2011: *Algebra lineare numerica nei problemi inversi*, Como, Italy.
- MINISYMPOSIUM:
  - October 2015: *Recent Advances in Numerical Linear Algebra for Inverse Problems* with Julianne Chung, conference SIAM CONFERENCE ON APPLIED LINEAR ALGEBRA, Atlanta, USA.
  - July 2014: *Numerical methods for inverse problems and image analysis* with Marco Prato, conference SIMAI 2014, Taormina, Italia.
  - June 2014: *Structured Numerical Linear Algebra in Imaging and Monument conservation* with Stefano Serra Capizzano, conference ECMI 2014, Taormina, Italia.
  - June 2010: *Linear Algebra and Inverse Problems* with James G. Nagy, conference ILAS 2010, Pisa, Italia.
  - July 2009: *Asymptotic Linear Algebra, Numerical Methods, and Applications* with Stefano Serra Capizzano, conference ENUMATH 2009, Uppsala, Sweden.

## International conferences

Legend: invited talk (i.t.), contributed talk (c.t.), and plenary lecture (p.l.).

- 24–28 October 2016 - NUMERICAL LINEAR ALGEBRA WITH APPLICATIONS, CIRM, Luminy, with a talk *Spectral analysis and numerical methods for fractional diffusion equations* (i.t.).
- 19–21 September 2016 - OPTIMIZATION TECHNIQUES FOR INVERSE PROBLEMS III, Modena, Italy, with a talk *Regularization preconditioners for frame-based deconvolution* (i.t.).
- 14–18 March 2016 - STRUCTURED MATRIX COMPUTATIONS WITH APPLICATIONS, TSIMF, Sanya, China, with a talk *Spectral analysis and structure preserving preconditioners for Fractional Diffusion Equations* (i.t.).
- 23–27 March 2015 - GAMM 2015 - GAMM 86TH ANNUAL SCIENTIFIC CONFERENCE, Lecce, Italy, with a talk *Fast nonstationary preconditioned iterative methods for ill-posed problems, with application to image deblurring* (extended talk).
- 8–12 September 2014 - SLA 2014 - STRUCTURED NUMERICAL LINEAR AND MULTILINEAR ALGEBRA: ANALYSIS, ALGORITHMS AND APPLICATIONS, Kalamata, Greece, with a talk *Fast nonstationary preconditioned iterative methods for ill-posed problems, with application to image deblurring* (i.t.).
- 12–14 May 2014 - SIAM CONFERENCE ON IMAGING SCIENCE, Hong Kong, with a talk *Fast nonstationary preconditioned iterative methods for ill-posed problems, with application to image deblurring* (i.t.).

- August 2013 - ENUMATH 2013, Lausanne, Switzerland, with a talk *Multigrid preconditioning for nonlinear (degenerate) parabolic equations with application to monument degradation* (i.t.).
- September 2012 - OPTIMIZATION TECHNIQUES FOR INVERSE PROBLEMS II, Modena, Italy, with a talk *An iterated Tikhonov Thresholding algorithm for image deblurring* (i.t.).
- September 2012 - STRUCTURED NUMERICAL LINEAR AND MULTILINEAR ALGEBRA PROBLEMS: ANALYSIS, ALGORITHMS, AND APPLICATIONS, Leuven, Belgio, with a talk *Arnoldi methods for image deblurring with non symmetric blur and antireflective boundary conditions* (i.t.).
- June 2012 - CONGRESSO SIMAI 2012, Torino, Italy, with a talk *Approximated nonstationary iterated Tikhonov with application to image deblurring* (c.t.).
- June 2012 - 2012 SIAM CONFERENCE ON APPLIED LINEAR ALGEBRA, Valencia, Spain, with a talk *Approximated nonstationary iterated Tikhonov with application to image deblurring* (i.t.).
- October 2011 – INTERNATIONAL CONFERENCE ON SCIENTIFIC COMPUTING - SC2011, S. Margherita di Pula, Sardegna, Italy, with a talk *An iterative multigrid regularization method for deblurring problems* (i.t.).
- July 2011 – FOUNDATIONS OF COMPUTATIONAL MATHEMATICS FoCM'11, Budapest, Hungary, with a talk *Square regularization matrices for large linear discrete ill-posed problems* (i.t.).
- June 2011 – HOUSEHOLDER SYMPOSIUM XVIII, Tahoe City, California, USA, with a talk *Square smoothing operators imposing accurate boundary conditions* (i.t.).
- April 2011 – GAMM 82<sup>nd</sup> ANNUAL MEETING, Graz, Austria, with a talk *Grid transfer operators for multigrid methods* (i.t.).
- September 2010 – EUROPEAN MULTIGRID CONFERENCE 2010, Isola d'Ischia, Italy, with a talk *Symbol approach (for structured matrices) in multigrid with applications in imaging* (p.l.).
- September 2010 – EUROPEAN MULTIGRID CONFERENCE 2010, Isola d'Ischia, Italy, with a talk *An iterative multilevel regularization method* (c.t.).
- June 2010 – INVERSE PROBLEMS, COMPUTATION, AND APPLICATIONS (IPCA), CIRM Luminy, France, with a talk *Images deblurring by filtering and antireflective boundary conditions* (i.t.).
- July 2009 – CONFERENCE ON APPLIED INVERSE PROBLEMS 2009, Vienna, Austria, con una presentazione dal titolo *Image deblurring with high order boundary conditions* (i.t.).
- July 2009 – ENUMATH 2009, Uppsala, Sweden, with a talk *Images deblurring by filtering and antireflective boundary conditions* (i.t.).
- March 2009 – 14<sup>th</sup> COPPER MOUNTAIN CONFERENCE ON MULTIGRID METHODS, Copper Mountain, Colorado, USA, with a talk *An algebraic generalization of the local Fourier analysis* (c.t.).

- September 2008 – STRUCTURED LINEAR ALGEBRA PROBLEMS: ANALYSIS, ALGORITHMS, AND APPLICATIONS, Cortona, Italy, with a talk *The Antireflective algebra and applications* (i.t.).
- June 2008 – HOUSEHOLDER SYMPOSIUM XVII, Zeuthen, Germany, with a talk *The Antireflective algebra with applications to image deblurring* (i.t.).
- July 2007 – 6<sup>th</sup> INTERNATIONAL CONGRESS ON INDUSTRIAL AND APPLIED MATHEMATICS, Zurich, Switzerland, with a talk *Multilevel regularization for image deblurring problems* (i.t.).
- September 2006 – NUMERICAL LINEAR ALGEBRA IN SIGNALS AND SYSTEMS International workshop, Hotel porto Giardino, Monopoli (Bari), with a talk *Regularization by multigrid-type algorithms* (i.t.).
- August 2006 – INTERNATIONAL CONGRESS OF MATHEMATICIANS, Madrid, Spain, con un poster dal titolo *Image restoration with anti-reflective boundary conditions and re-blurring* that has won the **second prize** at the session “Numerical Analysis and Scientific Computing”.
- July 2006 – JOINT GAMM-SIAM CONFERENCE ON APPLIED LINEAR ALGEBRA, Düsseldorf, Germany, with a talk *Regularization by multigrid-type algorithms* (c.t.).
- June 2006 – THE 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON STRUCTURED MATRICES, Hong Kong, Baptist University, with a talk *Matrix structures and image restoration: boundary conditions and re-blurring* (i.t.).
- April 2006 – 9<sup>th</sup> COPPER MOUNTAIN CONFERENCE ON ITERATIVE METHODS, Copper Mountain, Denver (CO), USA, with a talk *Filter factor analysis of an iterative multilevel regularizing method* (c.t.).
- September 2005 – 8<sup>th</sup> EUROPEAN MULTIGRID CONFERENCE ON MULTIGRID, MULTILEVEL AND MULTISCALE METHODS, Scheveningen The Hague, Netherlands, with a talk *Image deblurring with Multigrid Methods* (c.t.).
- September 2004 – STRUCTURED NUMERICAL LINEAR ALGEBRA PROBLEMS: ALGORITHM AND APPLICATIONS, Cortona, Italy, with a talk *On the regularizing power of multigrid-type algorithms* (i.t.).
- March 2004 – MINIWORKSHOP ON APPLIED COMPUTATIONAL INVERSE PROBLEMS, Firenze, Italy, with a talk *Regularization by an algebraic multigrid method* (i.t.).
- March 2004 – MINIWORKSHOP ON APPLIED COMPUTATIONAL INVERSE PROBLEMS, Firenze, Italy, with a talk *Anti-reflective boundary conditions and fast deblurring methods* (i.t.).
- September 2003 – INTERNATIONAL WORKSHOP IN NUMERICAL LINEAR ALGEBRA AND ITS APPLICATIONS, Porto Giardino, Monopoli (BA), Italy, with a talk *An Algebraic Multigrid for image restoration* (i.t.).
- September 2003 – INTERNATIONAL WORKSHOP IN NUMERICAL LINEAR ALGEBRA AND ITS APPLICATIONS, Porto Giardino, Monopoli (BA), Italy, with a talk *Antireflective boundary condition in image restoration* (i.t.).

- August 2003 – SPIE’s 48<sup>th</sup> ANNUAL MEETING at the session “Signal and Image Processing and Sensors”, San Diego, California, USA, with a talk *A Multigrid method for restoration and regularization of images with Dirichlet boundary conditions* (i.t.).

## PUBLICATIONS

### Journal papers

- [1] P. DELL'ACQUA, M. DONATELLI, S. SERRA-CAPIZZANO, D. SESANA, C. TABLINO-POSSIO, *Optimal preconditioning for image deblurring with Anti-Reflective boundary conditions*, *Linear Algebra Appl.*, 502 (2016), pp. 159–185.
- [2] M. DONATELLI, T. HUCKLE, M. MAZZA, D. SESANA, *Image deblurring by sparsity constraint on the Fourier coefficients*, *Numer. Algorithms*, 72 (2016), pp. 341–361.
- [3] M. DONATELLI, M. MOLteni, V. PENNATI, S. SERRA-CAPIZZANO, *Multigrid methods for cubic spline solution of two points (and 2D) boundary value problems*, *Appl. Numer. Math.*, 104 (2016), pp. 15–29.
- [4] M. DONATELLI, C. GARONI, C. MANNI, S. SERRA-CAPIZZANO, H. SPELEERS, *Spectral analysis of matrices in isogeometric collocation methods*, *Math. Comp.*, 85 (2016), pp. 1639–1680
- [5] Y. CAI, M. DONATELLI, D. BIANCHI, T. Z. HUANG, *Regularization preconditioners for frame-based image deblurring with reduced boundary artifacts*, *SIAM J. Sci. Comput.*, 38–1 (2016), pp. B164–B189.
- [6] M. DONATELLI, C. GARONI, M. MAZZA, S. SERRA-CAPIZZANO, D. SESANA, *Preconditioned HSS method for large multilevel block Toeplitz linear systems via the notion of matrix-valued symbol*, *Numer. Linear Algebra Appl.*, 23 (2016), pp. 83–119.
- [7] M. DONATELLI, M. MAZZA, S. SERRA-CAPIZZANO, *Spectral analysis and structure preserving preconditioners for fractional diffusion equations*, *J. Comput. Phys.*, 307 (2016), pp. 262–279.
- [8] M. DONATELLI, C. GARONI, C. MANNI, S. SERRA-CAPIZZANO, H. SPELEERS, *Two-grid optimality for Galerkin linear systems based on B-splines*, *Comput. Vis. Sci.*, 17 (2015), pp. 119–133.
- [9] M. BOLTEN, M. DONATELLI, T. HUCKLE, AND C. KRAVVARITIS, *Generalized grid transfer operators for multigrid methods applied on Toeplitz matrices*, *BIT*, 55 (2015), pp. 341–366.
- [10] M. DONATELLI, A. LUATI, A. MARTINELLI, *Spectral filtering for trend estimation*, *Linear Algebra Appl.*, 473 (2015), pp. 217–235.
- [11] D. BIANCHI, A. BUCCINI, M. DONATELLI S. SERRA-CAPIZZANO, *Iterated fractional Tikhonov regularization*, *Inverse Problems*, 31 (2015) 055005.
- [12] M. BOLTEN, M. DONATELLI, T. HUCKLE, *Analysis of smoothed aggregation multigrid methods based on toeplitz matrices*, *Electron. Trans. Numer. Anal.*, 44 (2015), pp. 25–52.
- [13] M. DONATELLI, C. GARONI, C. MANNI, S. SERRA-CAPIZZANO, H. SPELEERS, *Robust and optimal multi-iterative techniques for IgA collocation linear systems*, *Comput. Methods Appl. Mech. Engrg.*, 284 (2015), pp. 1120–1146.

- [14] M. DONATELLI, D. MARTIN, L. REICHEL, *Arnoldi methods for image deblurring with anti-reflective boundary conditions*, Appl. Math. Comput., 253 (2015), pp. 135–150.
- [15] M. DONATELLI, C. GARONI, C. MANNI, S. SERRA-CAPIZZANO, H. SPELEERS, *Robust and optimal multi-iterative techniques for IgA Galerkin linear systems*, Comput. Methods Appl. Mech. Engrg., 284 (2015) pp. 230–264.
- [16] M. DONATELLI, C. GARONI, M. MAZZA, S. SERRA-CAPIZZANO, D. SESANA, *Spectral behavior of preconditioned non-Hermitian multilevel block Toeplitz matrices with matrix-valued symbol*, Appl. Math. Comput., 245 (2014), pp. 158–173.
- [17] P. DELL’ACQUA, M. DONATELLI, C. ESTATICO, *Preconditioners for image restoration by reblurring techniques*, J. Comput. Appl. Math., 272 (2014), pp. 313–333.
- [18] M. DONATELLI, L. REICHEL, *Square smoothing regularization matrices with accurate boundary conditions*, J. Comput. Appl. Math., 272 (2014), pp. 334–349.
- [19] V. DEL PRETE, F. DI BENEDETTO, M. DONATELLI, S. SERRA-CAPIZZANO, *Symbol approach in a signal-restoration problem involving block Toeplitz matrices*, J. Comput. Appl. Math., 272 (2014), pp. 399–416.
- [20] Z. J. BAI, D. CASSANI, M. DONATELLI, S. SERRA-CAPIZZANO, *A Fast Alternating Minimization Algorithm for Total Variation Deblurring Without Boundary Artifacts*, J. Math. Anal. Appl., 415 (2014), pp. 373–393.
- [21] J. HUANG, M. DONATELLI, R. CHAN, *Nonstationary Iterated Thresholding Algorithms for Image Deblurring*, Inverse Problems and Imaging, 7–3 (2013), pp. 717–736.
- [22] M. DONATELLI, M. HANKE, *Fast nonstationary preconditioned iterative methods for ill-posed problems, with application to image deblurring*, Inverse Problems, 29 (2013) 095008.
- [23] M. DONATELLI, M. SEMPLICE, S. SERRA-CAPIZZANO, *AMG preconditioning for non-linear degenerate parabolic equations on nonuniform grids with application to monument degradation*, Appl. Numer. Math., 68 (2013), pp. 1–18.
- [24] M. DONATELLI, A. NEUMAN, L. REICHEL, *Square regularization matrices for large linear discrete ill-posed problems*, Numer. Linear Algebra Appl., 19–6 (2012), pp. 896–913.
- [25] M. DONATELLI, *On nondecreasing sequences of regularization parameters for nonstationary iterated Tikhonov*, Numer. Algorithms, 60–4 (2012), pp. 651–668.
- [26] M. DONATELLI, S. SERRA-CAPIZZANO, D. SESANA, *Multigrid methods for Toeplitz linear systems with different size reduction*, BIT, 52–2 (2012), pp. 305–327.
- [27] M. DONATELLI, N. MASTRONARDI, *Fast deconvolution with approximated PSF by RSTLS with antireflective boundary conditions*, J. Comput. Appl. Math., 236–16 (2012), pp. 3992–4005.
- [28] M. DONATELLI, *An iterative multigrid regularization method for Toeplitz discrete ill-posed problems*, Numer. Math. Theor. Meth. Appl., 5 (2012), pp. 43–61.
- [29] R. CAVORETTO, A. DE ROSSI, M. DONATELLI, S. SERRA-CAPIZZANO, *Spectral analysis and preconditioning techniques for radial basis function collocation matrices*, Numer. Linear Algebra Appl., 19–1 (2012), pp. 31–52.



- [30] M. DONATELLI, M. SEMPLICE, S. SERRA-CAPIZZANO, *Analysis of multigrid preconditioning for implicit PDE solvers for degenerate parabolic equations*, SIAM J. Matrix Anal. Appl., 32–4 (2011), pp. 1125–1148.
- [31] Z. J. BAI, M. DONATELLI, S. SERRA-CAPIZZANO, *Fast Preconditioners for Total Variation Deblurring with Anti-Reflective Boundary Conditions*, SIAM J. Matrix Anal. Appl., 32–3 (2011), pp. 785–805.
- [32] M. DONATELLI, S. SERRA-CAPIZZANO, *Antireflective Boundary Conditions for Deblurring Problems*, Journal of Electrical and Computer Engineering, Vol. 2010 (2010), Article ID 241467, 18 pages (survey).
- [33] M. DONATELLI, *Fast transforms for high order boundary conditions in deconvolution problems*, BIT, 50–3 (2010), pp. 559–576.
- [34] M. DONATELLI, *An algebraic generalization of local Fourier analysis for grid transfer operators in multigrid based on Toeplitz matrices*, Numer. Linear Algebra Appl., 17 (2010), pp. 179–197.
- [35] M. DONATELLI, M. HANKE, *On the condition number of the antireflective transform*, Linear Algebra Appl., 432 (2010), pp. 1772–1784.
- [36] A. ARICÒ, M. DONATELLI, S. SERRA-CAPIZZANO, *The anti-reflective algebra: structural and computational analysis with application to image deblurring and denoising*, Calcolo, 45–3 (2008), pp. 149–175.
- [37] A. ARICÒ, M. DONATELLI, S. SERRA-CAPIZZANO, *Spectral analysis of the anti-reflective algebra*, Linear Algebra Appl., 428 (2008), pp. 657–675.
- [38] M. DONATELLI, S. SERRA-CAPIZZANO, *Filter factor analysis of an iterative multilevel regularizing method*, Electron. Trans. Numer. Anal., 29 (2007/2008), pp. 163–177.
- [39] A. ARICÒ, M. DONATELLI, *A V-cycle Multigrid for multilevel matrix algebras: proof of optimality*, Numer. Math., 105–4 (2007), pp. 511–547.
- [40] M. DONATELLI, C. ESTATICO, S. SERRA CAPIZZANO, *Boundary conditions and multiple-image re-blurring: the LBT case*, J. Comput. Appl. Math., 198–2 (2007), pp. 426–442.
- [41] M. DONATELLI, C. ESTATICO, A. MARTINELLI, S. SERRA-CAPIZZANO, *Improved image deblurring with anti-reflective boundary conditions and re-blurring*, Inverse Problems, 22 (2006) pp. 2035–2053.
- [42] B. SEIFERT, H. STOLZ, M. DONATELLI, D. LANGEMANN, M. TASCHE, *Multilevel Gauss-Newton Methods for Phase Retrieval Problems*, J. Phys. A, 39–16 (2006), pp. 4191–4206.
- [43] M. DONATELLI, S. SERRA CAPIZZANO, *On the regularizing power of multigrid-type algorithms*, SIAM J. Sci. Comput., 27–6 (2006), pp. 2053–2076.
- [44] M. DONATELLI, *A Multigrid for image deblurring with Tikhonov regularization*, Numer. Linear Algebra Appl., 12–8 (2005), pp. 715–729.
- [45] R. VIO, J. BARDSLEY, M. DONATELLI, W. WAMSTEKER, *Dealing with edge effects in least-squares image deconvolution problems*, Astron. Astrophys., 442 (2005), pp. 397–403.

- [46] M. DONATELLI, S. SERRA CAPIZZANO, *Anti-reflective boundary conditions and re-blurring*, Inverse Problems, 21–1 (2005) pp. 169–182.
- [47] A. ARICÒ, M. DONATELLI, S. SERRA CAPIZZANO, *V-cycle optimal convergence for certain (multilevel) structured linear systems*, SIAM J. Matrix Anal. Appl., 26–1 (2004) pp. 186–214.

### Special Volumes and Conference proceedings (with referees)

- [48] M. DONATELLI, S. SERRA CAPIZZANO, *Multigrid methods for (multilevel) structured matrices associated to a symbol and related applications*, Bollettino U. M. I. (9) VI (2013), pp. 319–347.
- [49] M. DONATELLI, M. NEYTCHIEVA, S. SERRA CAPIZZANO, *Canonical eigenvalue distribution of multilevel block Toeplitz sequences with non-Hermitian symbols*, Spectral Theory, Mathematical System Theory, Evolution Equations, Differential and Difference Equations, in Operator Theory: Advances and Applications, Vol. 221 (2012), pp. 269–292, Birkhauser Verlag.
- [50] A. ARICÒ, M. DONATELLI, J. NAGY, S. SERRA-CAPIZZANO, *The Anti-Reflective Transform and Regularization by Filtering*, Numerical Linear Algebra in Signals, Systems, and Control., Lecture Notes in Electrical Engineering, Springer Verlag, Vol. 80 (2011) pp. 1–21.
- [51] R. CAVORETTO, A. DE ROSSI, M. DONATELLI, S. SERRA-CAPIZZANO, *Spectral analysis for radial basis function collocation matrices*, Numerical Mathematics and Advanced Applications, Springer, 2009/2010, Part 2, pp. 237–244.
- [52] M. DONATELLI, S. SERRA CAPIZZANO, *On the Treatment of Boundary Artifacts in Image Restoration by reflection and/or anti-reflection*, Matrix methods: theory, algorithms and applications, edited by V. Olshevsky and E. Tyrtyshnikov, World Scientific, 2010, pp. 227–237.
- [53] M. DONATELLI, *A Multigrid method for restoration and regularization of images with Dirichlet boundary conditions*, in Advanced Signal Processing Algorithms, Architectures and Implementations XIII, edited by Franklin T. Luk, Proceeding of SPIE 5205 (2003), pp. 358–368.
- [54] M. DONATELLI, C. ESTATICO, J. NAGY, L. PERRONE, S. SERRA-CAPIZZANO, *Anti-reflective boundary conditions and fast 2D deblurring models*, in Advanced Signal Processing Algorithms, Architectures and Implementations XIII, edited by Franklin T. Luk, Proceeding of SPIE 5205 (2003), pp. 380–389.
- [55] R. H. CHAN, M. DONATELLI, S. SERRA CAPIZZANO, C. TABLINO POSSIO, *Application of multigrid techniques to image restoration problems*, Advanced Signal Processing: Algorithms, Architectures, and Implementations XII, Proceeding of SPIE 4791 (2002) pp. 210–221.

## Long Abstract

- [56] M. DONATELLI, A. LUATI, A. MARTINELLI, *Spectral filtering for trend estimation*, Electronic Proceedings of the 46th scientific meeting of the Italian Statistical Society (2012), p. 4.
- [57] M. DONATELLI, *Grid transfer operators for multigrid methods*, PAMM Proc. Appl. Math. Mech. 11 (2011) pp. 745–746.
- [58] M. DONATELLI, *Multilevel regularization for image deblurring problems*, PAMM Proc. Appl. Math. Mech. 7 (2007) pp. 1021703–1021704.
- [59] M. DONATELLI, *Deconvoluzione di immagini e metodi multigrid*, Boll. Unione Mat. Ital. Sez. A 10–2 (2007) pp. 227–230.
- [60] A. ARICÒ, M. DONATELLI, S. SERRA CAPIZZANO, *MGM optimal convergence for certain (multilevel) structured linear systems.*, PAMM Proc. Appl. Math. Mech. 3 (2003) pp. 543–544.

## Ph.D. Thesis

- [61] M. DONATELLI, *Image deconvolution and multigrid methods*, Università degli Studi di Milano, discussa il 10 marzo 2006. Supervisore Prof. Stefano Serra Capizzano.

## Diploma Thesis

- [62] M. DONATELLI, *Metodi Multigrid per sistemi lineari strutturati ed applicazioni*, Università degli Studi di Firenze, discussa il 15 luglio 2002. Relatori: Prof. Renzo Sprugnoli (relatore interno) e Prof. Stefano Serra Capizzano (relatore esterno).

Como, November 3, 2016