FIORELLA SGALLARI
CURRICULUM VITAE

PERSONAL INFORMATION

Address: Department of Mathematics – University of Bologna,
Piazza di Porta S. Donato, 5- 40127 Bologna, Italy
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Via Saragozza 8, 40123 Bologna, Italy.
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RESEARCH UNIQUE IDENTIFIER:

ScopusID: 6603889140
Orcid: https://orcid.org/0000-0002-9166-8879

SCIENTIFIC PRODUCTION:

- **84 publications on referred International Journals**
- **56 on special Volumes and Conference proceedings (with referees)**
- **4 Didactical publications**
- **8 Books, Chapters and Special Journal Volumes Edited**
- **1 patent**
- **h-ind.21, 1471 Scopus citations, h-ind. 28 2403 Citations Google Scholar**
- **My Google Profile: https://scholar.google.it/citations?user=8x4cmYEAAAAJ&hl=it**

TOP 5 MOST CITED PAPERS:

- D Calvetti, S Morigi, L Reichel, F Sgallari: *Tikhonov regularization and the L-curve for large discrete ill-posed problems*, Journal of computational and applied mathematics 123 (1-2), 423-446, 2000. **Citations: GS 435**
- P Baraldi, A Sarti, C Lamberti, A Prandini, F Sgallari: *Evaluation of differential optical flow techniques on synthesized echo images*. IEEE Transactions on Biomedical Engineering 43 (3), 259-272, 1996. **Citations: GS 119.**
- A Sarti, K Mikula, F Sgallari: *Nonlinear multiscale analysis of three-dimensional echocardiographic sequences*, IEEE Transactions on Medical Imaging 18 (6), 453-466, 1999. **Citations: GS 71.**
- S Corsaro, K Mikula, A Sarti, F Sgallari: *Semi-implicit covolume method in 3D image segmentation*, SIAM Journal on Scientific Computing 28 (6), 2248-2265, 2006. **Citations: GS 66.**
- A Handlovičová, K Mikula, F Sgallari: *Semi-implicit complementary volume scheme for solving level set like equations in image processing and curve evolution*, Numerische Mathematik 93 (4), 675-695, 2003. **Citations: GS 66.**

EMPLOYMENT and EDUCATION:

Since 2002 Full Professor of Numerical Analysis, University of Bologna.
1987-2002 Associate Professor of Numerical Analysis, University of Bologna.
1980-1987 Researcher at University of Bologna.
1977-1980 Researcher at University of Bologna of CNR.
1977 Diploma di Perfezionamento in "Teoria e applicazione delle macchine calcolatrici" cum laude at the University of Bologna.
1976 Dottore in Matematica cum laude at the University of Bologna.

AWARDS AND HONORS:

2018 "Ambasciatori di Bologna" Award.
2017 Best Student Paper Award at International Conference "VI ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing" (VipIMAGE2017), Porto, Portugal, October 2017 for the paper: A. Lanza, S. Morigi, M. Pragliola, F. Sgallari, Space-Variant TV Regularization for Image Restoration. In: Tavares J., Natal Jorge R. (eds) VipIMAGE 2017. ECCOMAS 2017. Lecture Notes in Computational Vision and Biomechanics, vol.27, pp.160-169, 2018, Springer.
2016 Leonardo Da Vinci Award 2016 – Awarded by a Scientific Committee from Datalogic S.p.A. for the best applied research in the year. Results obtained inside the project *"Study and development of innovative methods for robust and efficient barcode decoding"* under patents (USA n. US9361503B2 and Europe n. EP3016028A1)

PROFESSIONAL COMMITTEES AND ACTIVITIES (since 2002):

- **Vice-Chair SIAM Group on Imaging Science**. (Society for Industrial and Applied Mathematics), 2018-2019.
- **Member of Academy of Sciences of Bologna Institute**, 2018- present.
- **Member of Excellence Center ARCES-UNIBO**, Advanced Research Center on Electronic Systems for Information and Communication Technologies E. De Castro , 2018-present
- Committee Member for permanent positions and promotions (Associate and Full professors in Numerical Analysis), Ministry of Research and Education, 2012-2013.
- Member of the Committee for PhD programs in Mathematics, University of Bologna. 2003-present.
- Committee Member for extra-institutional task authorizations, University of Bologna, 2016-present
- Member of the International PhD Examination Committee for PhD Program in Mathematics, at University of Hong Kong, July 2012;
- **Director of Reasearch Center CIRAM** (Centro Interdipartimentale di Ricerca per le Applicazioni della Matematica), University of Bologna, 2006–2013.
- **Scientific Coordinator** Alma Mater **Research Center on Applied Mathematics (AM^2),** University of Bologna, 2020-present.
- Member Didactical Committee for Civil Engineering Degree and Master, 2002-present.
- President Census Committee, Faculty of Engineering, Univ. of Bologna, 2006-2012.
- Responsible of the *Laboratory for High Performance Graphics and Vision Computing and Laboratory of Scientific Computing* (CIRAM) , 2006-present.
- Member "Society for Industrial and Applied Mathematics" (SIAM), 1992-present.
- Member of National Group for Scientific Calculus (GNCS), 1999-present.
- Member "Italian Society of Applied and Industrial Mathematics" (SIMAI), 1992-present.
- Member "Unione Matematica Italiana" (UMI), 1978-present.

(plus a great number of institutional activities in committees at various levels, at the University of Bologna).

VISITING POSITIONS AND INDUSTRIAL COLLABORATIONS

- Datalogic IP Tech, Italy.
- Skanray Europe S.r.l.
- IMALs.r.l., R&D / Engineering / Service, Italy.
- Fondazione Ugo Bordoni - Roma – Bologna, Italy
- Fondazione Guglielmo Marconi – Bologna, Italy
- Laboratorio di Tecnologia Medica - Istituti Ortopedici Rizzoli – Bologna, Italy
- Supercomputing Center CINECA - Bologna
- INRIA - Parigi - 1982 (2 monthes)
- University of Minnesota, U.S.A. 1991.
- Prof. L. Reichel, Kent State University, Ohio, U.S.A. 1999, 2003, 2008
- Prof. D. Calvetti, Case Western University, Cleveland, U.S.A, 1999.
- Prof. E. Somersalo, Helsinki University of Technology, Finland, 2004.
- Prof. M. Rumpf, Univ. Bonn, Germany, 2000.
- Prof. X. C. Tai, Univ. Bergen, Norwey. 2006.
- Prof. Raymond Chan, Univ. Chinese di Hong Kong, 2012, 2014.

PATENTS

"***SYSTEMS, METHODS AND ARTICLES FOR READING HIGHLY BLURRED MACHINE-READABLE SYMBOLS***"
Inventors: F. Deppieri, M. Aldo De Girolami, A. Lanza, F. Sgallari
Publication date: 2016/5/5 - Patent number: 20160125218 - Application number: 14/528697
Patent n. EP3016028, Patent n. US9361503

RESEARCH GRANTS

AS PRINCIPAL INVESTIGATOR

1992-1994 Reasearch Grant among Dept.Mathematics, Dept. Electronics, Informatics and Sistems, University of Bologna and CINECA on: "*Numerical methods for the design and simulation of non-linear microwave circuits using supercomputers, Iterative methods for the solution of linear systems of huge dimensions".*

1997 C.N.R. Strategic Project: "*Models and numerical methods for the design and simulation of non-linear microwave circuits"*.

1998-99 C.N.R. Coordinate Project: "*Large linear systems and parallel computing"*.

1998-99 MURST Research Porject: "*Methods and software for Applied Science"*.

1998-99 Scientific Coordinator C.N.R. Associate Center on "*Mathematical Models and Methods in Engineering and Applied Sciences"* at University of Bologna.

2003 National Projects INDAM-GNCS-GNAMPA: *"Theoretical and computational aspects of inverse problems".*

2005 Industrial Research**,** (Esaote-Genova, TecnoBiomedica-Rome)**:** *2D Segmentation of Ultrasound Images"*.

2004 NATO Project Reference : PST.CLG.979123: "*Efficient and robust computational methods for biomedical image analysis".*

2004 PRIN2 Project,: "*Numerical methods for large linear systems and applications to nonlinear evolutionary equations* ".

2006 PRIN Project, "*Innovative numerical methods for large discrete models*".

2008 PRIN Project, "*Innovative numerical methods for large discrete problems* ".
2012-2014 Industrial project Datalogic IPTech Srl, *"Development of methods for correct classification of barcode signals in the presence of noise and high levels of blur*".
2014-2017 Industrial project Datalogic IPTech Srl, *"Study and development of innovative methods for robust and efficient barcode decoding* .
2017-2018 Industrial project IMAL SRL Modena, "*Algorithms and mathematical solutions for a research project related to RF technology in industrial applications*".
2019 Industrial project Skanray Europe S.r.l., *"Study and develop reconstruction algorithms for cone-beam computed tomography for soft-tissues*"

PARTECIPATION AT GRANTS

2003 EU Project FRAFEM, scientific coordinator numerical unity : "*Real-time software for the femoral neck fracture prediction*".
2006 Strategic Project–University of Bologna on "*Geometric theory of partial differential equations*", Dept. Mathematics.
2006 Strategic Project –University of Bologna on *"Remote sensors at low cost for the measurement of forces and displacements*", DISTART.
2012 Italy-China project, joint project funded by The Chinese University of Hong Kong (internal grant for international projects) Grant Number: CUHK Direct Allocation Grant #2060408. "Tight-frame Algorithms for Segmentation". P. I.: Prof. Raymond H. Chan - Co-P.I.: Prof. Fiorella Sgallari et al.
2017 Alma Idea Grant. "*Variational methods for heterogeneous embedded system for portable immunofluorescence diagnostics*".

PROJECT EVALUATOR FOR INTERNATIONAL FUNDING AGENCIES

- Ministry of Research and Education , Italy.
- Swiss National Science Foundation.
- HPC Europa - High Performance Computing.
- Nanyang Technological University, Singapore.
- Research Grants Council, Hong Kong.
- Research Foundation Flanders (FWO), Belgium.
- University of Macau (UM) Research Committee for the 2012 Multi-Year Research Grant (MYRG)
- Czech Science Foundation.
- External reviewer for the tenure track assistant professorship on "Mathematical Foundations and Applicationsof Image Analysis", Saarland University, Saarbruecken, Germany
- External reviewer for the tenure track in the Kate Gleason College of Engineering (KGCOE) at Rochester Institute of Technology.
- HPC-Europa3 (EC H2020 programme): Scientific Users Selection Panel

MEMBERSHIPS TO EDITORIAL BOARD OF INTERNATIONAL JOURNALS:

Since 2007 Editor, Numerical Mathematics:Theory, Methods and Applications
Since 2008 Editor, International Journal of Imaging and Robotics
Since 2009 Editor, ETNA - Electronic transactions on Numerical Analysis
Since 2012 Editor, Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization
Since 2020 Editor, Journal of Imaging

REVIEWER FOR JOURNALS

SIAM Journal on Imaging Sciences , SIAM Journal on Scientific Computing, IEEE Trans. on Pattern Analysis and Machine Intelligence, IEEE Trans. Image Processing, IEEE Transactions on Neural Networks, IEEE Transactions on Cybernetics, Inverse Problems, Inverse Problems and Imaging, Inverse Problems in Science and Engineering (IPSE), BIT, ETNA-Electronic Transaction on Numerical Analysis, Journal of Computational and Applied Mathematics, Journal Computing and Visualization in Science, Journal of Integral Equations and Applications, Journal of Scientific Computing, Journal of Mathematical Imaging and Vision (JMIV), Applied Numerical Mathematics, Applied Physics & Engineering, Applied Mathematical Modelling, Mathematics and Computers in Simulation, Mathematical Problems in Engineering, Neural Computing and Applications, Numerical Algorithms, Numerical Linear Algebra with Applications, Physics in Medicine and Biology, Communications in Nonlinear Science and Numerical Simulations, Graphical Models, etc.

ORGANIZATION OF CONFERENCES, WORKSHOPS, AND SPECIAL SESSIONS

1999 ICIAM – Edimburgh, Minisimposium on "*Computational Methods in Image Processing and Analysis*"
1999 Workshop -Universities of California and Bologna on "*Advanced methods in Image Processing*"
2000 SIMAI –Ischia -Minisimposium on "*Biomedical image processing and reconstruction ".*
2001 International Conference -Montecatini–Italy, **AIP:** *"Applied Inverse Problems: Theoretical and Computational Aspects".*
2004 Workshop on Applied Computational Inverse Problems, Firenze – Italy.
2004 Workshop Matrix Day, Bologna - Italy 6 May, 2004.
2004 SIMAI– Venezia. Minisimposium on "*Computational aspects in medical imaging*"
2006 Workshop Numerical Analysis Day on Innovative Numerical Methods in Engineering Applications, Bologna – Italy.
2006 Workshop COMSOL Multiphysics, Bologna – Italy.
2008 Workshop Numerical Linear Algebra, Bologna – Italia.
2009 Conference on Applied Inverse Problems, Vienna. M12 *Inverse Problems: computational aspects and emerging applications*.
2007 SSVM 07 1st International Conference On Scale Space and Variational Methods in Computer Vision**,** May 30 – June 2, 2007 Ischia, Italy.
2009 First International Workshop of Computational Biomathematics at the University of Bologna and Third International Workshop of Morphofunctional Studies at the University of Parma on *Mathematical and biomedical modelling in regenerative medicine of endocrine organs*, Accademy of Sciences of Bologna, Italy.
2011 *XIX Congresso dell'Unione Matematica Italiana*, Bologna.
2015 ICIAM, Bejing. Minisimposium, *Image restoration: new algorithms and new applications*.
2019 ICIAM 2019, July 15-19, 2019. Four Minisimposia Organizer: *"Optimisation and Inverse Problems in Imaging Science".*

2005 Scientific Committee International Conf. *Scale-Space 2005*, Hofgeismar, Germany.
2005 Scientific Committee International Conf. *Algoritmy 2005*, Vysoke Tatry, Slovakia.
2009 Scientific Committee "International Conference on Imaging Theory and Applications" – IMAGAPP 2009, Lisbona, Portugal.
2009 Scientific Committee "Scale Space and Variational Methods - SSVM 09 Voss, Norway.
2009 Scientific Committee "EUROMEDIA 2009 - The Multimedia Applications Conference", Bruges, Belgium.

2009 Scientific Committee special track “Computational Bioimaging”, ISVC09 - 5th International Symposium on Visual Computing, Las Vegas, Nevada, USA.
2010 Scientific Committee “CompIMAGE'2010 Symposium”, Buffalo, NY
2010 Scientific Committee “Inverse Problems: Computation and Applications”, Luminy, France .
2010 Scientific Committee International Conference EUROMEDIA 2010, Gandia, Spain, Workshop “Medical Imaging Systems”.
2010 Scientific Committee 6th International Conference on Technology and Medical Sciences. Porto, Portugal.
2010 Scientific Committee special track “Computational Bioimaging” ISVC10 - 6th International Symposium on Visual Computing, Las Vegas, Nevada, U SA.
2011 Scientific Committee International Program Committee IMAGAPP 2011, Algarve Portugal.
2011 Scientific Committee Third International Conference on Scale-Space and Variational Methods in Computer Vision (SSVM 2011), Israel.
2011 Scientific Committee VipIMAGE2011 - 3rd ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing, Algarve, Portugal.
2011 Scientific Committee ISVC'11 Special Track on "Computational Bioimaging". 7th International Symposium on Visual Computing, Las Vegas, Nevada, USA
2012 Scientific Committee CompIMAGE 2012, 3rd edition, Rome, Italy.
2012 Scientific Committee VISAPP 2012, International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, Rome.
2013 Scientific Committee Fourth ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2013), Madeira island, Portugal.
2013 Scientific Committee VISAPP 2013 Barcelona, Spain.
2013 Scientific Committee Fourth International Conference on Scale-Space and Variational Methods in Computer Vision (SSVM 2013), Austria.
2013 Scientific Committee “International Congress on Neurotechnology, Electronics and Informatics” - NEUROTECHNIX 2013 Vilamoura, Algarve, Portugal.
2013 Scientific Committee International Conference on Computational and Experimental Biomedical Sciences (ICCEBS2013) S Miguel Island, Azores.
2014 Scientific Committee - VISAPP 2014, 9th International Joint Conf.on Computer Vision, Imaging and Computer Graphics Theory and Applications. Lisbon, Portugal.
2014 Scientific Committee CompIMAGE 2014, 4thd edition, Pittsburgh, USA.
2014 Scientific Committee “International Congress on Neurotechnology, Electronics and Informatics” - NEUROTECHNIX 2014, Rome, Italy.
2015 Scientific Committee 5th ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2015), Tenerife island, Canary Islands, Spain.
2015 Scientific Committee 10th Intl. Conf. on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Hong Kong.
2015 Scientific Committee VISAPP 2015, 10th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications. Berlin, Germany.
2015 Scientific Committee Conference “New Trends in Numerical Analysis - Theory, Methods, Algorithms and Applications” NETNA 2015, Falerna (CZ), Italy.
2015 Scientific Committee “International Congress on Neurotechnology, Electronics and Informatics” - NEUROTECHNIX 2015. Lisbon, Portugal.
2015 Scientific Committee 2nd MICCAI workshop on Bio-Imaging Visualization for Patient-Customized Simulations, MICCAI 2015 - the 18th International Conference on Medical Image Computing and Computer Assisted Intervention, Munich, Germany.
2015 Scientific Committee Fifth International Conference on Scale-Space and Variational Methods in Computer Vision (SSVM 2015), France.
2016 Scientific Committee CompIMAGE 2016, 5th edition, Niagara falls, NY , USA .
2016 Scientific Committee “International Congress on Neurotechnology, Electronics and Informatics” - NEUROTECHNIX 2016. Porto, Portugal.

2016 Scientific Committee VISAPP 2016, 11th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications. Rome, Italy.

2017 Scientific Committee 6th ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing (VipIMAGE 2017), Porto, Portugal.

2017 Scientific Committee Sixth International Conference on Scale-Space and Variational Methods in Computer Vision (SSVM 2017), Denmark.

2017 Programme Committee 11th International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR), Venice, Italy, 30 October - 1 November 2017.

2018 Scientific Committee VISAPP 2018, 13th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications. Madeira, Portugal.

2018 Scientific Committee "International Congress on Neurotechnology, Electronics and Informatics" - NEUROTECHNIX 2018. Seville, Spain.

2018 Scientific Committee CMBBE 2018. 5th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering and 3rd Conference on Imaging and Visualization. March 2018, Lisbon, Portugal.

2018 **Siam Conference on Imaging Science, Bologna, Italy**. (**International and, Organizing Committee Co-Chair). https://www.siam-is18.dm.unibo.it/**

2019 Scientific and Organizing Committee Workshop on "*Efficient Operator Splitting Techniques for Complex Systems and Large Scale Data Analysis*", Tsinghua Sanya International Mathematics Forum (TSIMF) January 14-18, 2019.

2019 Scientific Committee VISAPP 2019, 14th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications. Prague, Czech. Republic.

2019 Minisymposium Organization, ICIAM 2019 Valencia, Spain July 15-19, Minisimposium on Computational Methods for Inverse Problems (4 parts) : R.Chan-F.Sgallari

2020 Scientific and Organizing Committee Workshop on "*Efficient Algorithms in Data Science, Learning and Computational Physics*" at the Tsinghua Sanya International Mathematics Forum (TSIMF) in Sanya, China, January 12- 16, 2020.

2020 Scientific Committee 21st ALGORITMY Conference, September 10-15, 2020, Slovakia.

2021 Program Committee of International VISAPP ("16th International Conference on Computer Vision Theory and Applications"), Online 8-10 February 2021.

2021 Scientific Committee International Conference on Scale Space and Variational Methods in Computer Vision (SSVM), Cabourg, France, May 16-20 2021.

2021 Scientific Committee CMBBE 2021 Symposium (17th International Symposium on Computer Methods on Biomechanics and Biomedical Engineering, and 5th Conference on Imaging and Visualization) Bonn, Germany, 7 – 9 September 2021.

INVITED TALKS AT INTERNATIONAL CONFERENCES (SINCE 2004)

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

1. International Conference on "Perspectives in Inverse Problems", Helsinki, May 31-June 5, 2004. "*Edge preserving regularization methods in image processing*". (i.t.)
2. Workshop Computational Problems in Medical Imaging. Genova, November 2004. "*2D and 3D ultrasound processing".* (i.t.)
3. Conference "Scuola Scienza e Societa'", 24-26 February 2005, La Maddalena, Italy. "*La matematica e l'imaging medico*". **(p.l.)**
4. Conference on Numerical Analysis: The state of the art. (NAC2005) May 19-21 2005. University of Calabria Rende (CS), Italy. "*Numerical solution of inverse problems in image analysis* ". (i.t)
5. SPIE 2005. The International Society for Optical Engineering, Symposium on Advanced Signal Processing Algorithms, Architectures, and Implementations XV. San Diego, USA. August 2005. **"***Regularized segmentation based on nonlinear PDE models: some numerical aspect*". (i.t.)

6. SIAM Minisymposia at Joint Mathematics Meetings, San Antonio, Texas, January 12-15, 2006. "*Some computational issues on inverse problems in medical imaging*". (i.t.)
7. Workshop on "Variational, PDE, and Level Set Set Methods", Obergurgl, Tyrol, Austria (1. - 3.9.2006). *"Finite Volumes in Imaging and Surface Processing"*. (i.t.)
8. *"Numerical Methods in Image Processing"*, at European Excellence Center, Bergen-Oslo 5 December, 2006. **(p.l.)**
9. Workshop on "Geometrical partial differential equations: numerics and applications", Bergen, Norway (6-7. 12. 2006). *"Numerical experience in PDE Image and Surface Processing"*.(i.t.)
10. Numerical Analysis Day on Innovative Numerical Methods in Engineering Applications. Bologna 18.9.2006.*"Numerical Analysis in Imaging and Surface Processing"*. (i.t.)
11. University Roma La Sapienza, Dipartimento di Matemtica 'G. Castelnuovo', 27 February 2007, *" Metodi cascadic multiresolution per il deblurring delle immagini"*. (i.t.)
12. Seminari Università Palermo: 24 January 2008**,** Centro Interdipartimentale Tecnologie della Conoscenza, "*Modelli e Metodi numerici per l'image processing".* (i.t.)
13. GAMM Workshop Applied and Numerical Linear Algebra with special emphasis on Regularization of Ill-posed Problems September 11-12, 2008-Technische Universität Hamburg-Harburg, Germany,*"Cascadic Multilevel Methods for Large-Scale Ill-Posed problems"*. (i.t.)
14. Foundations of Computational Mathematics - City University of Hong Kong at Hong Kong, China, 16-26 June 2008. WORKSHOP B5 Numerical linear algebra,*"Cascadic Multilevel Methods for Large-Scale Ill-Posed Problems".* (i.t.)
15. Kent State University October 9, colloquium talk *"Numerical experience in PDE image and surface processing"* , 2008. (i.t.)
16. Varga Conference Kent 17-18 October 2008, "*Cascadic multilevel methods for image denoising and deblurring".* (i.t.)
17. "Scale Space and Variational Methods-SSVM 09", 2009, Voss, Norway, *"Composed Segmentation of Tubular Structures by an Anisotropic PDE Model*". (c.t.)
18. Approximation methods in numerical linear algebra, "2nd Dolomites Workshop on Constructive Approximation and Applications" (DWCAA09), Alba di Canazei (Trento, Italy), Sept. 4-9 2009. *"Edge-preserving multilevel methods for deblurring, denoising, and segmentation".*(i.t.)
19. Minisymposium Talk, SIAM Conference on Imaging Science, Chicago, USA, April 12-14, 2010. ***"****Image Restoration by Tikhonov Regularization Based on Generalized Krylov Subspace Methods".* (i.t.)
20. Inverse Problems, Computations and Applications, Luminy, France, May 31-June 4, 2010. "*A paradigm for updating preconditioners in nonlinear image denoising and deblurring"*, (i.t.).
21. International Workshop on Numerical Mathematics: Theory, Methods and Applications, August 25-29, 2010, Nanjing, China, *"Fast numerical solution of inverse problems in image processing".* **(p.l.)**
22. Minisymposium Talk on *Linear Algebra and Inverse prob*lems, ILAS 2010, Pisa, Italy, June 21-25, 2010. '*Image Restoration by Tikhonov Regularization Based on Generalized Krylov Subspace Methods'.* (i.t.)
23. Minisimposium Talk, MSP04 Analytical and Numerical Methods for Applied Inverse Problems, SIMAI, Cagliari, Italy, 21-24 June, 2010. "*A paradigm for updating preconditioners in nonlinear image denoising and deblurring".* (i.t.)
24. FoCM'11, Foundation of Computational Mathematics, Budapest, 4-14 July 2011. Workshop on Numerical linear algebra. *"Alternating Krylov subspace image restoration methods".* (i.t.)
25. ICIAM 2011, 18-22 July 2011, Vancouver, Canada. MS99 Theoretical and Numerical Aspects in Variational-PDE Methods for Solving Inverse Problems in Imaging Sciences.*"Iterative Krylov Subspace based Alternating Image Restoration Methods"*. (i.t.)
26. SC2011, International Conference on Scientific Computing. S. Margherita di Pula, Sardinia, Italy. October 10-14, 2011. "Alternating Krylov subspace image restoration methods". (i.t.)

27. Dipartimento di Matematica. Università La Sapienza di Roma. Seminario di Modellistica Differenziale Numerica. October 2011, *"Fast numerical solution of inverse problems in image processing".* (i.t.)

28. Minisymposium Talk on Inverse Problems and Image Analysis in Remote Sensing Science, Organizer: Igor Yanovsky, Jet Propulsion Laboratory, California Institute of Technology, USA, Anthony B. Davis, California Institute of Technology, USA Luminita A. Vese, University of California, Los Angeles, USA, 2012 SIAM Conference on Imaging Science, Philadelphia, USA, May 20-22, 2012. *"Texture Adaptive Image Restoration Using Fractional Order Regularization"*. (i.t.)

29. Mini-Workshop on Scientific Computing, University of Macau, Macao, P. R. China, 25–26tJuly, 2012, *"Texture Adaptive Image Restoration Using Fractional Order Regularization".* (i.t.)

30. CompIMAGE 2012. Computational Modeling of Objects Presented in Images: Fundamentals, Methods and Applications. 3rd edition, Rome September 4-7, 2012. *"Fast algorithms for Tikhonov and Total variation image restoration*". **(p.l.)**

31. New Frontiers in Numerical Analysis and Scientific Computing, Kent State University, Ohio, USA, April 19-20, 2013. *"Cascadic Alternating Krylov Subspace Image Restoration Methods".* (i.t.)

32. SIAM Conference on IMAGING SCIENCE, 12-14 May 2014, Hong Kong Baptist University, Minisimposium M12: Advances in Numerical Linear Algebra for Imaging, organizers: Julianne Chung, Malena I. Español. *"Variational Image Restoration with Auto-Correlation Whiteness Penalties".* (i.t.)

33. CompIMAGE 2014, Computational Modeling of Object presented in Images: Fundamentals, Methods and Applications. 3-5 Sptember Pittsburgh, PA, USA. *" A General Framework for Nonlinear Regularized Krylov-based Image Restoration"*. (i.t.).

34. SSVM 2015, Scale Space and Variational Methods in Computer Vision, 31May-4June , 2015 Lège Cap Ferret, France, *"Convex image denoising via Non-Convex Regularization*". (c.t.)

35. Netna 2015, New Trends in Numerical Analysis Theory, Methods, Algorithms and Applications**,** Falerna (CZ), Calabria, 18-21 June 2015. *"A generalized Krylov subspace method for l_p -l_q minimization".* (i.t.)

36. ICIAM 2015, 10-15 August, Bejing, *"Constrained TVp -L2 model for image restoration".* (i.t.)

37. International Conference on Numerical Mathematics and Scientific Computing, August 16 - 19, 2015, Nanjing, China, *"Convex image denoising via Non-Convex Regularization".* (i.t)

38. VIPIMAGE 2015 19-21 Octobe 2015, Tenerife, *"Image Restoration: A Survey and Recent Advances"*. **(p.l.)**

39. SIAM Conference on IMAGING SCIENCE, 23-26 May 2016, Albuquerque, New Mexico, USA, MS8 Non-Gaussian Noise: New Trends and Challenges, organizers: Federica Sciacchitano, Yiqiu Dong. *"A Majorization-Minimization Generalized Krylov Subspace Methods for Lp-Lq Image Restoration",* (Invited).

40. SIAM Conference on IMAGING SCIENCE, 23-26 May 2016, Albuquerque, New Mexico, USA, MS51 Nonconvex Regularization in Imaging: Theory, Algorithms and Applications, organizers: Yifei Lou, Jing Qin. *"Majorization-Minimization for Nonconvex Optimization",* (Invited, co-author).

41. Workshop on Optimization in Image Processing, 27-30 June 2016, Harvard University, Boston, USA. "Majorization-Minimization for Nonconvex Optimization". (**p.l**.)

42. Workshop on Computational Inverse Problems - Insight and Algorithms, Copenhagen, Denmark, August 23–25, 2017. "*A Unified Framework for the Restoration of Images Corrupted by Additive White Noise***"** (c.t.)

43. VIPIMAGE 2017 October 2017, Porto, Portugal, *"Space-variant TV regularization for image restoration*". (Best Student Paper Award, PHD M. Pragliola)

44. CMBBE 2018. 5th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering and 3rd Conference on Imaging and Visualization. March 2018, Lisbon, Portugal. Minisymposium Organizer :"*New Mathematical Trends in Medical Imaging*". **(i.t)**

45. CMBBE 2018. 5th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering and 3rd Conference on Imaging and Visualization. March 2018, Lisbon, Portugal. "*Enhancing sparsity beyond convexity: applications to the restoration and segmentation of medical images and surfaces*". (**p.l.**).
46. International Workshop on Image Processing and Invese Problems, Beijing, April 21-24, 2018, "*Image segmentation based on a convex non-convex variational model"*. (i.t)
47. Workshop in Image Science and Optimization, Hong Kong , January 11, 2019. "*Whiteness Constraints in a Unified Variational Frameworkfor Image Restoration*" (invited)
48. Workshop on Scientific Computing and Optimization with Applications to Image and Data Analysis, Hong Kong Baptist University, 12 January 2019. "*Whiteness Constraints in a Unified Variational Frameworkfor Image Restoration*" (i.t.)
49. International Workshop on "Efficient Operator Splitting Techniques for Complex Systems and Large Scale Data Analysis", Tsinghua Sanya International Mathematics Forum (TSIMF) January 14-18, 2019, "*Whiteness Constraints in a Unified Variational Frameworkfor Image Restoration*" (i.t.)
50. ETNA Conf. on Recent Advances in Scientific Computation Santa Margherita di Pula, Italy, May 27-29, 2019, *"Space-variant regularization for image restoration problems"* (**p.l**.)
51. Osa Imaging and Applied Optics Congress, June 22-26, 2019 Munich, Germany. "*Flexible space-variant directional regularization for image restoration problems"*. (I.t.)
52. ICIAM 2019 Valencia, Spain July 15-19, Minisimposium on Computational Methods for Inverse Problems, "*Adaptive parameter selection for weighted-TV image reconstruction problems*" (i.t.)
53. The Fourth International Workshop on Image Processing Techniques and Applications 22-23 July 2019 CMIT. "*Sparse Regularization via Convex Analysis*" (**p.l.)**
54. International Workshop on "*Efficient Algorithms in Data Science, Learning and Computational Physics*", Tsinghua Sanya International Mathematics Forum (TSIMF) January 12-16, 2020, "*Space-adaptive anisotropic bivariate Laplacian regularization for image restoration*" (i.t.).

RESEARCH INTERESTS

Numerical Analysis/Scientific Computing, and in particular:

- Ill-posed problems
- Variational Methods for Inverse Problems
- Numerical Linear Algebra
- Image Processing and Analysis
- Numerical Methods for Partial Differential Equation Based Image Processing
- Numerical Methods for Engineering problems

PUBLICATIONS

JOURNAL PAPERS

1. S. Alliney, F. Sgallari, *Two-dimensional almost band-limited discrete sequences*, Pubblicazioni IAC, Ser.3, N. 165, 1978.
2. S. Alliney, F. Sgallari, *Least squares approximation of two-dimensional FIR digital filters*, Alta Frequenza, Vol. 49, pp.24-26, 1980.
3. S. Alliney, F. Sgallari, *Chebyshev approximation of recursive digital filters having specified amplitude and phase characteristics*, Signal Processing, Vol.2, pp. 17-321, 1980.
4. S. Alliney, B.R. Bellomo,F. Sgallari, *Un problema di approssimazione connesso con la sintesi di filtri digitali non ricorsivi*, Calcolo, Vol.XVII, pp. 221-233, 1980.

5. S. Alliney, F. Sgallari, *Un nuovo sistema di Haar*, L'Elaborazione Automatica, Vol.3, pp. 213-218, 1981.
6. R. Morandi, F. Sgallari, *L' approssimazione razionale discreta come problema lineare*, L'Elaborazione automatica, Vol. 3, pp. 275-283, 1981.
7. S. Alliney, F. Sgallari, *Sul calcolo numerico delle lastre sottili*, L'Elaborazione Automatica, Vol.3, pp. 313-327,1981.
8. F. Sgallari, *A boundary integral equation approach to wave propagation over a trench*, Appl. Math. Modelling, Vol.7, pp.33-40, 1983.
9. S. Alliney, F. Sgallari, *An ill-conditioned Volterra integral equation related to the reconstruction of images*, SIAM J. Appl. Math., Vol.44, No. 3, pp. 627-645, 1984.
10. F. Sgallari, *A weak formulation of boundary integral equations for time dependent parabolic equations*, Appl. Math. Modelling, Vol.9, pp.295-301, 1985.
11. F. Sgallari, *Primal-dual variational problems by boundary and finite elements*, Appl. Math. Modelling, Vol.9, pp.246-252, 1985.
12. R. Morandi, F. Sgallari, *Parallel semi-asynchronous algorithms for the iterative solution of linear systems*, Supercomputer, Vol. VI, No.4 ,pp. 17-25, 1989.
13. R. Morandi, F. Sgallari, *Parallel algorithms for the iterative solution of sparse least squares problems*, Parallel Computing, Vol. 13, pp. 271-280, 1990.
14. C.Lamberti,F.Sgallari, *A workstation-based system for 2-D echocardiographic visualization and image processing*, IEEE Trans. on Biomedical Engineering, Vol. 37, pp.796-802, 1990.
15. V. Rizzoli, A. Lipparini, A. Costanzo, F. Mastri, C. Cecchetti, F. Sgallari, V. Frontini, *Modern perspective in supercomputer-aided microwave circuit CAD*, Intern. Journal of Microwave nad Millimiter-Wave Computer-Aided Engineering, Vol.1, pp. 201-224, 1991.
16. M.Barnabei, V. Frontini, F. Sgallari, *An algorithm for Weyl modules irreducibility*,Rend. Seminario Matematico Univ. e Polit. Torino, Vol.49, pp.217-232, 1991.
17. M.L.Bacchi Reggiani, C. Lamberti, A.Sarti, F.Sgallari, *Tecniche per elaborazione di immagini ecocardiografiche e coronografiche*, Atti Acc.Scienze Bologna, Anno 282, Serie V, N.6, pp.51-70, 1995.
18. F. Sloboda, F. Sgallari, *On the iterative solution of linear equations arising in BVPs of ODEs*, Linear Algebra and its Appl., Vol. 225, pp.195-205, 1995.
19. P. Baraldi, C. Lamberti, A. Prandini, A. Sarti, F. Sgallari, *Evaluation of differential optical flow techniques on synthesized echo images*, IEEE Trans. on Biomedical Engineering, Vol.43, pp.259-272, 1996.
20. V. Rizzoli, F. Mastri, C. Cecchetti, F. Sgallari, *Fast and robust inexact Newton approach to the harmonic-balance analysis of nonlinear microwave circuits***,** IEEE Microwave Guided Wave Letters, Vol.7, pp.359-361, 1997.
21. K. Mikula, A. Sarti, F. Sgallari, *Nonlinear multiscale analysis of 3D echocardiography sequences*, IEEE Trans. Medical Imaging , Vol.18, No. 6, pp.453-466, 1999.
22. D. Calvetti, L.Reichel, F.Sgallari, *Application of Anti-Gaussian quadrature rules to linear algebra*,"*Applications and Computation of Orthogonal Polynomials*", Intern. Ser. Numer. Math., (W.Gautschi, G.H.Golub, G.Opfer,Eds.),Vol.131, pp.41-56, Birkhauser, Basel. 1999.
23. D.Calvetti, L.Reichel, G.Spaletta, F.Sgallari, *A regularizing Lanczos iteration method for underdetermined linear systems*, Jour. Comput. Appl. Mathem,Vol. 115, pp. 101-120, 2000.
24. S. Morigi, F. Sgallari**,** *Models and numerical methods for nonlinear diffusion equations for 2D/3D image and image sequence analysis.* Ann. Univ. Ferrara, Sez. VII, Sc. Mat. Suppl. Vol. XLV, pp.129-141, 2000.
25. V. Rizzoli, A. Lipparini, F. Mastri, C. Cecchetti, F. Sgallari**,** *The exploitation of Krylov-Subspace methods in the harmonic-balance simulation of large nonlinear microwave circuits.* Ann. Univ. Ferrara, Sez. VII, Sc. Mat. Suppl. Vol. XLV, pp.507-520, 2000.
26. D. Calvetti, S. Morigi, L. Reichel, F. Sgallari, *Tikhonov regularization and the L-curve for large discrete ill-posed problems*, Jour. Comput. Appl. Mathem, special volume series: Studies in Computational Mathematics, Numerical Analysis 2000 in the 20-th Century), Vol. III, Linear

Algebra, Vol.123, n1-2, pp. 423-446, November 2000.
27. D.Calvetti, S.Morigi, L.Reichel, F.Sgallari, *Computable error bounds and estimates for the conjugate gradient method*, Numerical Algorithms, Vol. 25, pp. 75-88, 2000.
28. D.Calvetti, S.Morigi, L.Reichel, F.Sgallari, *An L-ribbon for large underdetermined linear discrete ill-posed problems*, Numerical Algorithms, Vol. 25, pp. 89-107, 2000.
29. D.Calvetti, S.Morigi, L.Reichel, F.Sgallari, *An iterative method with error estimator*, book series Studies in Computational Math.,Numerical Analysis 2000 in the 20th century, Vol.V Quadrature and Orthogonal Polynomials, J. Comput. Appl. Math., 127 , pp. 93-119, 2001.
30. S.Morigi, F.Sgallari, *A regularizing L-curve Lanczos method for underdetermined linear systems*, Applied Mathematics and Computation, Vol. 121/1, pp 55-73, 2001.
31. A. Handlovicova, K. Mikula, F. Sgallari, *Variational numerical methods for solving nonlinear diffusion equations arising in image processing*, Jour.Visual Communication and Image Representation, Vol.13, n1/2, pp.217-237, 2002.
32. C. Lamberti, K.Mikula, F.Sgallari, *Nonlinear multiscale analysis models for filtering of 3D + time biomedical images*, in "Geometric Methods in Bio-Medical image processing", (R. Malladi, Ed.), Lectures Notes in Computational Science and Eng., pp.107-127, Springer Verlag, 2002.
33. C.Lamberti, K.Mikula, F.Sgallari, *Evolutionary Partial Differential Equations for Medical Image Processing*, Journ. Biomedical Informatics, Vol. 35, No.2, pp.77-91, 2002.
34. A. Handlovicova, K. Mikula, F. Sgallari, *Semi-implicit complementary volume scheme for solving level set like equations in image processing and curvature evolution*, Numerische Mathematik, Vol.93, pp.675-695, 2003.
35. D.Calvetti, L.Reichel, F.Sgallari, *A modified companion matrix method based on Newton polinomials*, Contemporary Mathematics, Vol. 323, AMS-SIAM, pp.179-186, 2003.
36. K. Mikula, F. Sgallari, *Semi-implicit finite volume scheme for image processing in 3D cylindrical geometry*, Journ. Comp. Applied Mathem., Vol.161, pp.119-132,2003.
37. D.Calvetti, G. Landi, L.Reichel, F.Sgallari, *Non-negativity and iterative methods for ill-posed problems.* Inverse Problems, Vol.20, pp.1747-1758, 2004.
38. S.Morigi, F.Sgallari, *3D long bone reconstruction based on level sets*, Computerized Medical Imaging and Graphics, Vol. 28/7 pp 377-390, 2004.
39. D.Calvetti, B. Lewis, L.Reichel, F.Sgallari, *Tikhonov regularization with nonnegativity constraint.* Electronic Transaction on Numerical Analysis, Vol. 18, pp.153-173, 2004.
40. D. Testi, A. Cappello, F.Sgallari, M. Rumpf, F. Sgallari, M. Viceconti, *A new software for prediction of femoral neck fracture.* Computer Methods and programs in Biomedicine, Vol. 75, pp. 141-145, 2004.
41. S.Morigi, L.Reichel, F.Sgallari, F.Zama, *Iterative methods for ill-posed problems and semiconvergent sequences*, Journal of Computational and Applied Mathematics, Vol. 193/1, pp. 157 – 167, 2006.
42. K. Mikula, A. Sarti, F. Sgallari, *Co-volume method for Riemannian mean curvature flow in subjective surfaces multiscale segmentation*, Computing and Visualization in Science, Vol. 9, pp. 23-31, 2006.
43. D.Calvetti, F. Sgallari, E. Sommersalo**,** *Image inpainting with structural bootstrap priors*, Image and Vision Computing, Vol. 24, pp. 782-793, 2006.
44. S. Corsaro, K. Mikula, A. Sarti, F. Sgallari, *Semi-implicit co-volume method in 3D image segmentation***,** SIAM Jour. Scient. Comput, Vol.28, No.6, pp.2248-2265, 2006.
45. S.Morigi, L.Reichel, F.Sgallari, *A truncated projected SVD method for linear discrete ill-posed problems*, Numerical Algorithms, vol. 43, pp.197-213, 2006.
46. S.Morigi, L.Reichel, F.Sgallari, *An iterative Lavrentiev regularization method*, BIT Numerical Mathematics, Vol.46/3, pp. 589-606, 2006.
47. S.Morigi, L.Reichel, F.Sgallari, F.Zama, *An iterative method for linear discrete ill-posed problems with box constraints*, Journal of Computational and Applied Mathematics, Vol. 198(2), pp.505-520, 2007.

48. S.Morigi, L.Reichel, F.Sgallari, *Orthogonal projection regularization operators*, Numerical Algorithms, Vol.44/2, pp. 99-114, 2007.
49. R. Toni, C. Della Casa, F. Sgallari, G. Spaletta, G. Marchetti, P. Mazzoni, M. Bodria, S. Ravera, D. Dallatana, S. Castorina, V. Riccioli, E. Giovanni Castorina, S. Antoci, E. Campanile, G. Scalise, R. Rossi, G. Ugolotti, A. Martorella, E. Roti, A.Pinchera, *The bioartificial thyroid: a biotechnological perspective in endocrine organ engineering for transplantation replacement*, Acta Bio Medica, Vol.78 - Suppl. n° 1 / 2007.
50. R. Toni, C.D. Casa, M. Bodria, F. Sgallari, G. Spaletta, R. Vella, S. Castorina, A. Gatto, G. Teti, M. Falconi, T. Rago, P.Vitti, *A study on the relationship between intraglandular arterial distribution and thyroid lobe shape: implications for biotechnology of a bioartificial thyroid*. Annals of Anatomy. Vol. 190, pp. 432 – 441, 2008.
51. S.Morigi, L.Reichel, F.Sgallari, A. Shyshkov, *Cascadic Multiresolution Methods for Image Deblurring*, SIAM Journal of Imaging Science, Vol.1 , pp. 51-74, 2008.
52. S.Morigi, F.Sgallari, *The partition of unity method for high-order finite volume schemes using Radial Basis Functions reconstruction*, Numerical Mathematics: Theory, Methods and Applications, Vol. 2/2, pp.153-179, 2009.
53. D. Bertaccini, F. Sgallari, *Updating preconditioners for image restoration algorithms by nonlinear diffusion*, Applied Numerical Mathematics, Vol.60 (10), pp.994-1006, 2010.
54. S.Morigi, L.Reichel, F.Sgallari *Cascadic Multilevel methods for fast nonsymmetric blur- and noise-removal*, Applied Numerical Mathematics, Vol. 60/4, pp.378-396, 2010.
55. E.Franchini, S.Morigi, F.Sgallari, *Implicit shape reconstruction of unorganized points using PDE-based deformable 3D manifolds*, Numerical Mathematics: Theory, Methods and Applications, Vol.3, N. 4, pp. 405-430, 2010.
56. S.Morigi, L.Reichel, F.Sgallari, *An interior point method for large constrained discrete ill-posed problems*, Journal of Computational and Applied Mathematics, DOI:10.1016/j.cam.2008.02.018, Vol.233/5, pp. 1288-1297, 2010.
57. S.Morigi, L.Reichel, F.Sgallari, *Noise-reducing cascadic multilevel methods for linear discrete ill-posed problems*, Numerical Algorithms, Vol. 53/No.1; DOI 10.1007/s11075-009-9282-3, pp. 1-22, 2010.
58. S.Morigi, R.Plemmons, L.Reichel, F.Sgallari, *A hybrid multilevel-active set method for large box-constrained discrete ill-posed problems*, Calcolo, Vol.48/1, pp.89-105, 2011.
59. L.Reichel, F. Sgallari, Q.Ye, *Tikhonov regularization based on generalized Krylov subspace methods***,** Applied Numerical Mathematics, Vol. 62(9), pp.1215-1228, 2012.
60. J.O.Abad, S.Morigi, L.Reichel, F.Sgallari, *Alternating Krylov subspace image restoration methods*, Vol. 236, Issue 8, pp. 2049–2062 Journal Comp.Appl.Math, Scopus Code 2-s2.0-84855522653, DOI: 10.1016/j.cam.2011.09.030, 2012.
61. X. Cai, R.H. Chan, S. Morigi, F. Sgallari, Vessel Segmentation in Medical Imaging Using a Tight-Frame Based Algorithm, Vol. 6, No. 1, pp. 464–486, SIAM Journal on Imaging Sciences, Scopus Code 2-s2.0-84875904928, DOI: 10.1137/11084347, 2013.
62. M.K.Khan, S.Morigi, L.Reichel, F.Sgallari, *Iterative methods of Richardson-Lucy-type for image deblurring*, Numerical Mathematics: Theory, Methods and Applications (NM-TMA), Vol. 6, No. 1, pp. 262-275, Scopus Code 2-s2.0-84874075125, DOI: 10.4208/nmtma.2013.mssvm14, 2013.
63. R.H. Chan, A.Lanza, S. Morigi, F. Sgallari, *An Adaptive Strategy for the Restoration of Textured Images using Fractional Order Regularization*, Numerical Mathematics: Theory, Methods and Applications (NM-TMA), Vol. 6, No. 1, pp. 276-296, Scopus Code 2-s2.0-84874065691, DOI: 10.4208/nmtma.2013.mssvm15, 2013.
64. A. Lanza, S. Morigi, F. Sgallari, A.J. Yezzi, *Variational Image Denoising Based on Autocorrelation Whiteness*, Vol.6, No. 4,pp-1931-1955, SIAM Journal on Imaging Sciences, DOI: 10.1137/120885504, Scopus Code 2-s2.0-84891130160, 2013.

65. A. Lanza, S. Morigi, F. Sgallari, Y.W. Wen, *Image restoration with Poisson-Gaussian mixed noise*, Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization**,** Vol. 2, Issue 1, pp. 12--24, DOI: 10.1080/21681163.2013.811039, 2014.
66. A.Lanza, S. Morigi, F.Sgallari, A.Yezzi, *Variational Image Denoising While Constraining the distribution of the residual*, Electronic Transactions on Numerical Analysis, Volume 42, pp. 64-84. ISSN: 10689613, Scopus code 2-s2.0-84909586804, 2014.
67. A.Lanza, S. Morigi, F.Sgallari, *Variational Image Restoration with Constraints on noise whiteness*, Journal of Mathematical Imaging and Vision: Volume 53, Issue 1, pp. 61-77, DOI: 10.1007/s10851-014-0549-5, 2015.
68. A. Lanza, S. Morigi, L. Reichel, F. Sgallari, *A generalized Krylov Subspace Method for Lp -Lq Minimization*, SIAM Journal on Scientific Computing (SISC), Vol.37,n.5, pp s30-s50, 2015.
69. G. Placidi, D. Avola, A. Petracca, F. Sgallari, M. Spezialetti, *Basis for the Implementation of an EEG-based Single-Trial Binary Brain Computer Interface through the Disgust Produced by Remembering Unpleasant Odors*, Neurocomputing, Vol.160, pp.308-318, http://dx.doi.org/10.1016 /j.neucom.2015.02.034 doi:10.1016/j.neucom.2015.02.034, 2015.
70. A.Lanza, S. Morigi, F.Sgallari, *Convex Image Denoising via Non-convex Regularization with Parameter Selection*, Journal of Mathematical Imaging and Vision, vol. 56, pp.195-220, 2016.
71. A. Lanza, S. Morigi, F. Sgallari, *Constrained TVp-L2 model for Image Restoration*, Journal of Scientific Computing, vol. 68, pp.64-91, DOI 10.1007/s10915-015-0129-x, 2016.
72. A. Lanza, S. Morigi, I. Selesnik, F. Sgallari, *Nonconvex nonsmooth optimizationvia convex–nonconvex majorization–minimization*, Numerische Mathematik, Vol.136, DOI 10.1007/s00211-016-0842-x, pp. 343-381, 2017.
73. S. Morigi, L. Reichel, F. Sgallari, *Fractional Tikhonov regularization with a nonlinear penalty term*, Journal Comp. Appl.Math, vol.324, pp.142-154, DOI: 10.1016/j.cam.2017.04.017, 2017.
74. A. Lanza, S. Morigi, L. Reichel, F. Sgallari, *Majorization–minimization generalized Krylov subspace methods for ℓp–ℓq optimization applied to image restoration*, BIT Numerical Mathematics, Vol.57,n.5, pp 351-378, DOI: 10.1007/s10543-016-0643-8, 2017.
75. R.H. Chan, A.Lanza, S. Morigi, F. Sgallari, *Convex non-convex image segmentation*, Numerische Mathematik, Vol. 138, pp.635-680, DOI 10.1007/s00211-017-0916-4, 2018.
76. A.Lanza, F. Sciacchitano, S. Morigi, F. Sgallari, *Whiteness constraints in a unified variational framework for image restoration*, Journal of Mathematical Imaging and Vision, Vol.60, pp.1503-1526, 2018. DOI: 10.1007/s10851-018-0845-6.
77. A. Lanza, S. Morigi, I. Selesnik, F. Sgallari, *Sparsity-inducing Non-convex Non-separable Regularization for Convex Image Processing*, SIAM Journal on Imaging Sciences, Vol.12, pp.1099-1134, 2019.
78. M. Huska, A. Lanza, S. Morigi, F. Sgallari, Convex Non-Convex Segmentation of Scalar Fields Over Arbitrary Triangulated Surfaces, Journal of Computational and Applied Mathematics, Vol. 349, pp.438-451, 2019.
79. F. Logothetis, R. Mecca, F. Sgallari, R. Cipolla *A Differential Approach to Shape from Polarisation: a Level-Set Characterisation* , International Journal of Computer Vision, vol.127, pp. 1680-1693,2019, (DOI: 10.1007/s11263-018-1127-x, Scopus: 2-s2.0-85055689185, WOS:000492425300006).
80. L. Calatroni, A. Lanza, M. Pragliola, F. Sgallari, *A flexible space-variant anisotropic regularisation for image restoration with automated parameter selection,* SIAM Journal on Imaging Sciences. Vol. 12, pp.1001-1037, 2019. (DOI.10.1137/18M1227937)
81. A. Lanza, S. Morigi, M. Pragliola, F. Sgallari, *Space-variant generalized Gaussian Regularization for Image Restoration*, Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization, vol.7, pp. 490-503, 2019 (DOI: 10.1080/21681163.2018.1471620, Scopus Code: 2-s2.0-85047111874).
82. A. Lanza, S. Morigi, I. Selesnik, F. Sgallari, *Total Variation Signal Denoising via Convex Analysis*, Journal of Mathematical Imaging and Vision, Vol.62, pp.825-841, 2020. (DOI 10.1007/s10851-019-00937-5)

83. A. Lanza, M. Pragliola, F. Sgallari, *Residual whiteness principle for parameter-free imagerestoration*, ETNA Journal, vol.53, pp. 329-351, 2020. DOI=10.1553/etna_vol53s329
84. I. Selesnick, A. Lanza, S. Morigi, F. Sgallari, *Non-convex total variation regularization for convex denoising of signals*, Journal of Mathematical Imaging and Vision, vol. 62, pp. 825-841. 2020. DOI:10.1007/s10851-019-00937-5

SPECIAL VOLUMES AND CONFERENCE PROCEEDINGS (WITH REFEREES)

1. S. Alliney, F. Sgallari, *An efficient method for two-dimensional FIR filters approximation*, in: M.Kunt and F. de Coulon (eds.):" Signal Processing: Theories and Applications " North-Holland, Amsterdam, pp.397-401, 1980.
2. S. Alliney, F. Sgallari, *A new algorithm for 3D ventricular reconstruction from orthogonal projections*, in: "Proc.of the First International Symposium on Medical Imaging and Image Interpretation ISMIII '82" , IEEE Computer Soc. Press, pp. 517-520, 1982.
3. S. Alliney, V. Frontini, F. Sgallari, *Image analysis by the symmetry transform*, in: H. W. Schussler (ed.): "Signal Processing II: theories and applications", North-Holland, Amsterdam, pp. 235-237, 1983.
4. S. Alliney, R. Faraguti, F. Sgallari, *A fast algorithm for 2D symmetry analysis*, Proc.IASTED Int. Symp. on Applied Signal Processing and Digital Filtering, M. H. Hamaza (ed.), Acta Press, Canada, pp. 176-180, 1985.
5. S. Alliney, V. Frontini, F. Sgallari, *Iterazioni a caso per la soluzione di sistemi lineari*, Atti del Convegno di Analisi Numerica, De Frede, Napoli, pp. 10 - 35, 1985.
6. S. Alliney, V. Frontini, F. Sgallari, *A block iterative algorithm for the reconstruction of images from their projections*, EUSIPCO-86 , Signal Processing III: Theories and Applications, I. T. Young, R. P. W. Duin, J. Biemond, J. J. Gerbrans (eds.), North-Holland, Amsterdam, pp. 629- 634, 1986.
7. V. Frotini, R. Morandi, F. Sgallari, *Asynchronous algorithm for the iterative solution of linear systems*, Proc. Fall Conf.CRAY User Group,Bologna,pp. 190-193, 1987.
8. V. Frontini, F. Sgallari, *Block elimination for doubly bordered band linear systems*, Proc. 3rd IMSL European User Group Conference, Bologna, Italia, B 16 pp. 1 - 9, 1990.
9. A. Guidazzoli, C. Lamberti, F. Sgallari, *Image regularization for echocardiography digital processing*, in V. Cappellini (ed.) "Time-varying Image Processing and Moving Object Recognition", Elsevier, Amsterdam, pp.173 - 180, 1990.
10. C. Lamberti, F. Sgallari, *Anisotropic diffusion technique and morphological approach for echocardiography image processing* in: L.Torres, E. Masgrau and M. Lagunas (eds.): "Signal processing: theories and applications V", Elsevier, Amsterdam, pp. 939-942, 1990.
11. V. Rizzoli, F. Mastri, F. Sgallari, V. Frontini, *The exploitation of sparse - matrix techniques in conjuction with the piecewise harmonic balance method for nonlinear microwave circuit analysis*, Proc. 1990 IEEE MTT-S International Microwave Symposium, K.K. Agarwal (ed.), IEEE Press,Vol. III, Dallas, Texas, pp.1295-1298, 1990.
12. V. Rizzoli, A. Lipparini, F. Mastri, A. Neri, F. Sgallari, V. Frontini, *Intermodulation analysis of microwave mixers by a sparse-matrix method coupled with the piecewise harmonic-balance technique*, Proc.20th European Microwave Conference, Vol.1, Microwave Ex. Publ., U.K., pp. 189-194, 1990.
13. C. Lamberti, F. Sgallari, *Edge detection and velocity field for the analysis of heart motion*, Proc. Intern. Conf. on Digital Processing, Elsevier, Amsterdam, pp. 603-608, 1991.
14. C. Lamberti, F. Sgallari, G. Venturelli, *Anisotropic diffusion technique for 2-D echocardiographic image processing*, Proc. IEEE - EMBS Conf., J.H. Nagel, W.M. Smith, (eds.) , IEEE Press, Vol.13, pp 233 - 234, 1991.
15. C. Lamberti, F. Sgallari, F. Bulgarelli, *Optical flow computation in 2-D echocardiography*, Proc. Computer in Cardiology, IEEE Comp. Soc. Press, Washington, pp.489 - 492, 1991.

16. V. Rizzoli, A. Lipparini, F. Mastri, C. Cecchetti, F. Sgallari, V. Frontini, *Frequency domain analysis of electrically and thermally nonlinear microwave circuits*, Proc.22th European Microwave Conference, Vol.1, Microwave Ex. Publ., U.K., pp. 1097-1102, 1992.
17. P. Baraldi, A. Guidazzoli, C. Lamberti, A. Prandini, F. Sgallari, *Computational approaches for evaluation of ventricular wall motion from 2-D echocardigrams*, Proc. VI Mediterranean Conf. on Medical and Biological Eng., M. Bracale e F. Denoth, (eds.), CNR. Pisa, pp. 711 - 714, 1992.
18. A. Bellettini, A.Ciampolini, V. Frontini, L.Leonardi, D.Sermasi, F. Sgallari, *Parallel processing and libraries: some experiences with a transputer architecture*, Proc. 5rd IMSL European User Group Conference "Scientific Visaulization and Numerical Computing", Munich, Germany, B 12 pp. 1-9, 1992.
19. C. Lamberti, F. Sgallari, M. Sitta, *Improvements to the anisotropic diffusion model for 2-D echo image processing*, Proc. IEEE - EMBS Conf., J.P. Morucci, R. Plonsey, J.L. Coatrieux and S. laxminarayan (Eds.), IEEE Press, Vol.14, pp.1872-1873, 1992.
20. P. Baraldi, S.Cavalcanti, D. Del Giudice, C.Lamberti, A.Sarti, F.Sgallari, *Motion evaluation from synthesized 3-D echocardiograms* , in V. Cappellini (ed.) " Time- varying Image Processing and Moving Object Recognition", Elsevier, Amsterdam, pp. 267-272, 1993.
21. D. Calvetti, L. Reichel, G. Spaletta, F. Sgallari, *An iterative method for image reconstruction from projections*, Proc.5th SIAM Conference on Applied Linear Algebra, Utah, pp. 92-96, 1994.
22. N. Guglielmi, F. Mastri, V. Rizzoli, F. Sgallari, *Harmonic-balance technique for the steady-state analysis of large nonlinear circuits*, Proc.2nd SIMAI Conf., pp. 120-121, Capri 1994.
23. M. Benzi, F. Sgallari, G. Spaletta, *A parallel block projection method of the Cimmino type for finite Markov chains* , in "Computations with matkov chains", W.J. Stewart (ed.), Proc.2nd Inter. Workshop on the Numer. Solution of Markov Chains, Kluwer Academic Publ., pp. 65-80, 1995.
24. V. Rizzoli, F. Mastri, F. Sgallari, G. Spaletta, *Harmonic-balance simulation of strongly nonlinear very large-size microwave circuits by inexact Newton methods*, 1996 IEEE-MTT-S International Symposuim Digest, IEEE Press, Vol.3, pp.1357-1360, 1996.
25. K. Mikula, A. Sarti, F. Sgallari, *Models and numerical methods for nonlinear multiscale analysis of 3D image sequences*, Proc. 4th SIMAI Conference, Messina, pp. 389-393, 1998.
26. V.Rizzoli, A.Lipparini, F.Mastri, C.Cecchetti, F.Sgallari, *Signal and noise analysis of large nonlinear microwave circuits by advanced harmonic-balance techniques*, Proc. European Conf. on Circuit Theory and Design ECCTD'99,(C.Beccari, M.Biey,P.P. Civalleri, M.Gilli eds.), Levrotto & Bella, Torino, pp.329-332.(Invited paper, ECCTD 99), 1999.
27. S. Morigi, A. Sarti, F. Sgallari, *Parallel multiscale analysis of 2D image sequences*, Proc. Fifth European SGI/CRAY MPP Workshop, Bologna, Italy, pp.1-11, 1999.
28. A. Cappello, S. Morigi, F. Sgallari, C. Zannoni, *An anisotropic nonlinear diffusion approach to image interpolation*. Proc. CD of the Inter. Symp. of Mathem. Theory of Networks and Systems, Perpignan, (A.El Jai, M. Fliess, Eds), pp.1-8, 2000.
29. C. Lamberti, K. Mikula, A. Sarti, F. Sgallari, *Multiscale echocardiographic sequence analysis*, Proc. 5th SIMAI Conference, Ischia, pp. 124-128, 2000.
30. V. Rizzoli, F. Mastri, D. Masotti, F. Sgallari, *Scattering-matrix based inexact-Newton harmonic balance with incomplete preconditioning*, Proc. 30th European Microwave Conference, Paris 3-5 October 2000 Microwave Ex. Publ., U.K., pp.243-246, 2000.
31. M.Bertaia, S.Morigi, E.L.Piccolomini, F.Sgallari, F.Zama *Regularization of large discrete ill-posed problems in Image Processing*, Advances in Computation: Theory and Practice; Recent Trends in Numerical Analysis, eds.L.Brugnano, D.Trigiante, Nova Science Books and Journals., NY, pp.43-97, 2000.
32. S.Morigi, F.Sgallari, K. Mikula *Registration based on evolution models*, Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE), vol. 4474-41, Advanced Signal Processing Algorithms, Architectures, and Implementations XI,ed.F.T.Luk, pp. 346-356, The

International Society for Optical Engineering, Bellingham, WA,USA, 2001.
33. K.Mikula, S.Morigi, A.Sarti, F.Sgallari, *Parallel Multiscale Filtering of two and three Dimensional Image Sequences*, "Scienza e Supercalcolo al CINECA", CINECA eds., 2001.
34. S. Corsaro, V. De Simone, A. Handlovicova, K. Mikula, F. Sgallari, *Complementary volume schemes in image denosing and segmentation*, Proc. 6th SIMAI Conference, Chia Laguna, pp. 1-14, 2002.
35. S. Corsaro, V. De Simone, A. Handlovicova, K. Mikula, F. Sgallari, *Linear co-volume scheme for anisotropic curvature driven motions*, in Numerical Mathematics and Advanced Applications, ENUMATH 2001 (Eds. F. Brezzi et al.), Springer-Verlag Italia, Milano, pp. 483-494, 2003.
36. K. Mikula, T.Preusser, M.Rumpf, F.Sgallari, *On Anisotropic Diffusion in 3D image processing and image sequence analysis*, in "Trends in Nonlinear Analysis", (M.Kirkilionis, S.Kromker,R.Rannacher, F. Tomi,eds.), Springer Verlag, pp.307-321, 2003.
37. S.Morigi, F.Sgallari *Regularized segmentation based on nonlinear PDE models: some numerical aspects*, Proc. of the Society of Photo-Optical Instrumentation Engineers SPIE), vol. 5910 Advanced Signal Processing Algorithms, Architectures, and Implementations XV, ed.F.T.Luk, pp.59100Y-1-12, SPIE, Bellingham, WA, USA, 2005.
38. S.Morigi, F.Sgallari, *A high order finite co-volume scheme for denoising using Radial Basis Functions*, Lecture Notes in Computer Science Vol. 4485, Scale Space and Variational Methods in Computer Vision, F.Sgallari, A.Murli, N. Paragios Eds. , pp. 43-54, 2007.
39. E.Franchini, S.Morigi, F.Sgallari, *Composed Segmentation of Tubular Structures by an Anisotropic PDE Model,* X.-C. Tai et al. (Eds): SSVM 2009, LNCS 5567, pp. 75-86, 2009, Springer-Verlag Berlin Heidelberg 2009.
40. S.Morigi, L.Reichel, F.Sgallari, *An edge-preserving multilevel method for deblurring, denoising, and segmentation*, X.-C. Tai et al. (Eds): SSVM 2009, LNCS 5567, pp. 427-439, 2009, Springer-Verlag Berlin Heidelberg, 2009.
41. D. Bertaccini, F. Sgallari, *A paradigm for updating preconditioners in nonlinear image denoising and deblurring*, SIMAI 2010 Cagliari, abstracts, p. 52, 2010.
42. D. Bertaccini, F. Sgallari, *A flexible updating framework for preconditioners in PDE-based image restoration algorithms*, Proceedings of ENUMATH 2009, the 8th European Conference on Numerical Mathematics and Advanced Applications, Uppsala, July 2009, Kreiss, G.; Lötstedt, P.; Målqvist, A.; Neytcheva, M. (Eds.), pp. 163-170, Springer 2010.
43. E.Franchini, S.Morigi, F.Sgallari, *Segmentation of 3D tubular structures by a PDE-based anisotropic diffusion model,* Lecture Notes in Computer Science 5862, M.Daehlen et al. (Eds.): MMCS 20008, pp. 224—241, Springer, Heidelberg, 2010.
44. D. Bertaccini, R.H. Chan, S. Morigi, F. Sgallari, *An adaptive norm algorithm for image restoration*, A.M. Bruckstein et al. (Eds.): SSVM 2011, LNCS 6667, pp. 194–205, Springer-Verlag Berlin Heidelberg, Scopus Code 2-s2.0-84855698574, DOI: 10.1007/978-3-642-24785-9_17, 2012.
45. X. Cai, R.H. Chan, S. Morigi, F. Sgallari, *Framelet-Based Algorithm for Segmentation of Tubular Structures*, A.M. Bruckstein et al. (Eds.): SSVM 2011, LNCS 6667, pp. 411–422, Springer-Verlag Berlin Heidelberg, Scopus Code 2-s2.0-84855670714, DOI: 10.1007/978-3-642-24785-9_3, 2012.
46. S. Morigi, M. Rucci, F. Sgallari, *Nonlocal Surface Fairing*, A. M. Bruckstein et al. (Eds.): SSVM 2011, LNCS 6667, pp. 38–49, Springer-Verlag Berlin Heidelberg, Scopus Code 2-s2.0-84855662611, DOI: 10.1007/978-3-642-24785-9_4, 2012.
47. S. Morigi, L. Reichel, F. Sgallari, *A Cascadic Alternating Krylov Subspace Image Restoration Method*, 4th International Conference, SSVM 2013, Schloss Seggau, Graz, Austria, June 2-6, 2013, Proceedings Series: Lecture Notes in Computer Science, Kuijper, A.; Bredies, K.; Pock, Th.; Bischof, H. (Eds.), SSVM 2013, LNCS 7893, pp. 98--109. Springer, Heidelberg, Scopus Code 2-s2.0-84884364987, DOI: 10.1007/978-3-642-38267-3_9, 2013.

48. S. Morigi, L. Reichel, F. Sgallari, *A general framework for nonlinear regularized Krylov-based image restoration*, 4th International Conference, CompIMAGE 2014, Pittsburgh, PA, USA, September 3-5, 2014, Proceedings, Lecture Notes in Computer Science LNCS 8641, Springer, pp. 273--279, DOI: 10.1007/978-3-319-09994-1_27, ISSN: 03029743, Scopus Code 2-s2.0-84905818399, (Eds) Yongjie Jessica Zhang, João Manuel R.S. Tavares, 2014.
49. A. Lanza, S. Morigi, F. Sgallari, *Convex image denoising via Non-Convex Regularization*, Scale Space and Variational Methods in Computer Vision, Proceedings Series: Lecture Notes in Computer Science, Volume 9087, ISBN 978-3-319-18460-9, Eds. Aujol, Jean-François and Nikolova, Mila and Papadakis, Nicolas, DOI 10.1007/978-3-319-18461-6_53, Springer International Publishing, pp. 666-677, 2015.
50. A. Lanza, S. Morigi, F. Sgallari, *A nonsmooth nonconvex sparsity-promoting variational approach for deblurring images corrupted by impulse noise*, VIPIMAGE 2015 Conf. Proc., CRC Press, pp. 87-94, 2016.
51. A. Lanza, S. Morigi, F. Sgallari, *Image restoration using variational approaches : some recent advances*, VIPIMAGE 2015 Conf. Proc., CRC Press, pp. 25-31 87-93, 2016.
52. M. Huska, A.Lanza, S. Morigi, F. Sgallari, *Convex Non-Convex Segmentation over Surfaces*, Scale Space and Variational Methods in Computer Vision, Proceedings Series: Lecture Notes in Computer Science, SSVM 2017, Volume 10302, Eds. Lauze F., Dong Y., Dahl A., DOI 10.1007/978-3-319-58771-4_28, Springer Cham, pp. 348-360, 2017.
53. A.Lanza, F. Sciacchitano, S. Morigi, F. Sgallari, *A Unified Framework for the Restoration of Images Corrupted by Additive White Noise*, Scale Space and Variational Methods in Computer Vision, Proceedings Series: Lecture Notes in Computer Science, SSVM 2017, Volume 10302, Eds. Lauze F., Dong Y., Dahl A., DOI 10.1007/978-3-319-58771-4_40, Springer Cham, pp. 498-510, 2017.
54. A.Lanza, S. Morigi, M. Pragliola, F. Sgallari, *Space-Variant TV Regularization for Image Restoration*, In: Tavares J., Natal Jorge R. (eds) VipIMAGE 2017. ECCOMAS 2017. Lecture Notes in Computational Vision and Biomechanics, vol 27. DOI 10.1007/978-3-319-68195-5_17. Springer, Cham. pp 160-169, 2017. **(Best student paper award)**
55. R.Chan, D.Lazzaro, S. Morigi, F. Sgallari, *A Non-convex Nonseparable Approach to Single-Molecule Localization Microscopy*, Scale Space and Variational Methods in Computer Vision, Proceedings Series: Lecture Notes in Computer Science, SSVM 2019, Volume 11603, Eds. J.Lellmann, M. Burger, J. Modersitzki, DOI 10.1007/978-3-030-22368-7_39, Springer Cham, pp. 498-509, 2019.
56. L. Calatroni, A.Lanza, M. Pragliola, F. Sgallari, *Adaptive parameter selection for weighted-TV image reconstruction problems*, Journal of Physiscs: Conference Series, NCMIP 2019, doi:10.1088/1742-6596/1476/1/012003, vol. 1476, 012003 (pages 11), 2020.

DIDACTICAL PUBLICATIONS

1. F. Sgallari, **Strumenti informatici nelle discipline matematiche**, in "Strumenti informatici nella didattica dell'Ingegneria", R. Guidorzi (ed.), pp.15-18, Facoltà di Ingegneria, Università di Bologna, Pitagora Ed., Bologna, 1990.
2. F. Sgallari**, Calcolo numerico e programmazione: esperienze con il FORTRAN 77**, in "Didattica matematica con l'ausilio del personal computer", R. Guidorzi (ed.), pp.77-83, Facoltà di Ingegneria, Università di Bologna, Pitagora Ed., Bologna, 1992.
3. A. Guidazzoli, F. Sgallari**, VAX/VMS e PC/MS-DOS: concetti di base per il laboratorio,** Esculapio, Progetto Leonardo, Bologna, 1993.
4. M. Gei**,** F. Sgallari, **Personal Computer, Microsoft DOS, WINDOWS, FORTRAN con elementi di grafica ed esercizi,** Esculapio, Progetto Leonardo, Bologna, 1994.

BOOKS AND SPECIAL JOURNAL VOLUMES EDITED

1. K. Mikula, A. Sarti, F, Sgallari, **Co-volume level set method in subjective surfaces based medical image segmentation"**, Hand Book of Medical Image Analysis, Vol. I: Segmentation Models Part A(ed. by J.S. Suri, D.L.Wilson, S.Laxminarayan), Kluwer Academic/Plenum publishers**,** New York, pp. 583-626, 2005.
2. F. Sgallari and A. Murli and N. Paragios (Eds**.), *Proc. International Conference on Scale Space and Variational Methods in Computer Vision***, Ischia, Italy, Springer, LNCS, Vol. 4485, May 2007. Springer-Verlag Berlin Heidelberg 2007.
3. L.Reichel, F, Sgallari, Applied Computational Inverse Problems, special issue of J. Compututational Applied Mathematics , issue 2, vol. 198, 2007.
4. N. Paragios, F.Sgallari, Scale Space and Variational Methods in Computer Vision, special issue of International Journal of Computer Vision, Vol. 84, Number 2, 2009.
5. A. Bouhamidi, K. Jbilou, R. Ramlau, L. Reichel, H. Sadok, F. Sgallari, Inverse Problems: Computation and Applications, special issue of J. Compututational Applied Mathematics , Vol.236,n.8, 2012.
6. F. Sgallari, X.C.Tai, Numerical Mathematics: Theory, methods and Applications. Special issue on Image Processing and Computer Vision, Volume 6, Number 1 pp. 1-324, 2013.
7. A. Mauri, B.Morini, S. Perotto, F. Sgallari, **Grid generation and Algebraic solvers,** book Chapter in Springer *Handbook of Semiconductor Devices*, (M.Rudan, S. Reggiani, R. Brunetti eds.), 2020 (in press).
8. A. Lanza, S. Morigi, I. Selesnik, F. Sgallari, **Convex non-Convex Variational Models,** book Chapter in Springer *Handbook of Mathematical Models and Algorithms in Computer Vision and Imaging*", (K. Chen, L. Younes, X.-C. Tai, C.-B. Schönlieb eds.), 2020 (in press).

TEACHING ACTIVITY

Many courses taught within the Faculty of Engineering Program (Undergraduate and Master, ialiand and english language), University of Bologna.
Adviser of many Master theses.
Seminars given at the PhD Program in Mathematics.

- Teaching of "Enhancing sparsity beyond convexity: applications to the restoration of barcode images and segmentation of medical images". International Summer School "Advanced Numerical Techniques for Inverse Problems"at Cagliari (Italy), July 17-21, 2017

Coordinator of ERASMUS programs with per la Slovakia and Switzerland.
Coauthor of two didactical books:

- *VAX/VMS e PC/MS-DOS: concetti di base per il laboratorio*
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- *Personal Computer, Microsoft DOS, WINDOWS, FORTRAN con elementi di grafica ed esercizi.* Esculapio, Progetto Leonardo, Bologna, 1994. In Coll. with M. Gei.

PHD STUDENTS

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POST-DOC. STUDENTS

- **Elena Franchini**, Title: *Metodi numerici a PDE paraboliche non lineari per l'eliminazione del rumore e la segmentazione di immagini 2D–3*D. CIRAM, Univ. Bologna, Jan-Dec. 2008.
- **Alessandro Lanza**, Title*:"Algoritmi Efficienti ed Accurati per la Restoration di Immagini 2D/3D per la Digital Image Correlation".* CIRI Edilizia e Costruzioni – Aug. 2012 -July 2013.
- **Alessandro Lanza**, Title: *"Sviluppo di metodi di classificazione corretta di segnali relativi ai codici a barre, in presenza di rumore ed elevati livelli di sfocatura".* CIRAM -Aug. 2013-Sept.2014.
- **Roberto Mecca**, Title: *"Analysis of new models and algorithms fro innovative 3D scanning technologies".* Dip. Matematica Jan-Dec. 2015.
- **Roberto Mecca**, Title: *"Analysis of new models and algorithms fro innovative 3D scanning technologies".* 2016-17. Marie Curie INDAM Cofund : Cambridge-Univ. Bologna.
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- **Monica Pragliola**, Title: "Statistical space-invariant regularizing techniques for image processing" , 2020-2021.