

Ruben Specogna, Ph.D.

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Università di Udine
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Personal data

Place of birth Cividale del Friuli (UD), Italy
Date of birth March 23rd, 1977
Marital status Married with Giulia Ferrario
Childrens Sara (2010), Fabio (2013)

Education

- **Università di Udine** Udine, Italy
Ph.D. in Industrial and Information Engineering 2007
– Advisor: Prof. Francesco Trevisan
- **Università di Udine** Udine, Italy
M.Sc. in Electronic Engineering 2002
– Advisors: Prof. Paolo Bettini, Prof. Francesco Trevisan

Research positions

- **Università di Udine** Udine, Italy
Habilitation for Full Professor 2020 – present
- **Università di Udine** Udine, Italy
Tenure as Associate Professor 2016 – present
– Courses taught:
 - * Electrical Science (9 ECTS)
 - * Electromagnetic Compatibility (6 ECTS)
 - * Advanced simulation for the design of electrical devices (6 ECTS)
- **Università di Udine** Udine, Italy
Tenure as Assistant Professor 2009 – 2016
- **Université de Liège** Liège, Belgium
Postdoc researcher 2008
– Advisors: prof. Patrick Dular and prof. Christophe Geuzaine, Applied and Computational Electromagnetics (ACE), Department of Electrical Engineering and Computer Science

Editorships & Reviewer

- **Associate Editor** of the ISI international journal **Mathematical Problems in Engineering**, whose impact factor is 1.2 according to 2013 Journal Citation Reports released by Thomson Reuters in 2014.
2014 – present
- **Associate Editor** of the ISI international journal **Advances in Mathematical Physics**, whose impact factor is 0.94 according to 2018 Journal Citation Reports released by Thomson Reuters in 2019.
2018 – present
- **Guest Editor** of the Special Issue *Electromagnetic Sensors for Biomedical Applications* of the ISI international journal **Sensors**, whose impact factor is 3.0 according to 2018 Journal Citation Reports released by Thomson Reuters in 2019.
2018 – present
- **Associate Editor** of the ISI international journal **Sensors**, whose impact factor is 3.0 according to 2018 Journal Citation Reports released by Thomson Reuters in 2019.
2019 – present
- Was part of the **Editorial Board** of the 8th Workshop on Advanced Computational Electromagnetics (ACE'13), held at the Centro Internazionale per la Ricerca Matematica (CIRM), Fondazione Bruno Kessler (FBK), Trento, Italy (see <http://www.science.unitn.it/ACE2013/>)
2013
- Is part of the **Editorial Board** of the Conference on the Computation of Electromagnetic Fields (COMPUMAG) and IEEE Conference on Electromagnetic Field Computation (CEFC), the two biggest conferences about computational electromagnetics.
2008 – present
- **Reviewer** for 21 journals: IEEE Transactions on Magnetics, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Microwave Theory and Techniques, IEEE Transactions on Pattern Analysis and Machine Intelligence, IEEE Transactions on Image Processing, COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, European Physical Journal-Applied Physics (EPJ-AP), Sensors, Journal of Theoretical and Applied Physics, Mathematical Problems in Engineering, Journal of Discrete Mathematics, Journal of Computational Methods in Sciences and Engineering, Journal of Computational and Applied Mathematics, Annals of Mathematics and Artificial Intelligence, IEEE Access, International Journal for Numerical Methods in Fluids, PLoS ONE, Computational Intelligence and Neuroscience, Journal of Sensors, Journal of Applied Mathematics and Journal of Computational Physics.

Awards & Grants

- From January 2017, more than 200,000 € have been gathered with industrial contracts (Integrated Devices Technology Inc., Google Inc., Renesas, Automotive Lighting, etc.) through the EMC Laboratory led by prof. Specogna.
Jan 2017- Dec 2019

- Competitive grant for a one month Visiting Professor position at the Department of Mathematics of the Università di Trento, Trento, Italy.
May 2016
- Agence national de la recherche (ANR) grant for two months Visiting Professor position at the Institut Montpelliérain Alexander Grothendieck of the Université de Montpellier, Montpellier, France.
March 2016
- Centre national de la recherche scientifique (CNRS) competitive grant for a three months Visiting Professor position at the Institut Montpelliérain Alexander Grothendieck of the Université de Montpellier, Montpellier, France.
March–June 2015
- **Principal investigator** of the research project “Lab-on-a-chip device for point-of-care diagnostics of the thrombotic risk profile,” which has been funded with 30,000 € as a *Proof of Concept Network* (PoCN) by the Area Science Park of Trieste with the advocacy of the Italian Ministry of University and Research (MIUR).
February 2015
- Competitive grant for a one month Visiting Professor position at the Centro Internazionale per la Ricerca Matematica (CIRM) of the Fondazione Bruno Kessler (FBK)–Università di Trento, Trento, Italy (see also <https://cirm.fbk.eu/list-visiting-professors-cirm-2008-2014>).
March 2013
- **Principal investigator** of the research project “A novel system based on Electric Impedance Tomography (EIT) for *in vitro* imaging of haemostasis,” which has been funded with 139,570 € as a *Research Project of National Interest* (PRIN) by the Italian Ministry of University and Research (MIUR). It has also been cofunded with 15,000 € by University of Udine.
17 October 2011 – 17 October 2013
- Founder of the IRONSCAN team which was selected as a winner at the business plan competition StartCup FVG, presenting a project about the three-dimensional imaging of rebars in concrete. The project won also the special price dedicated to prevention of damages due to heartquakes. The price consisted in 4,500 €.
2009
- Postdoc Scholarship at Université de Liège, Liège, Belgium.
2008
- Italian Ministry of University and Research (MIUR) Research Scholarship.
2007 and 2003
- Best Poster prize at the Italian Meeting of Researchers in Electrical Engineering ET2006, Turin, Italy.
2006
- Italian Ministry of University and Research (MIUR) three years Ph.D. Scholarship.
2004 – 2006

Research activity

His research interests are computational science and scientific computing, computational electromagnetism with applications to biomedical engineering, inverse problems and imaging, multi-physics problems (MEMS, nanoelectronics), computational topology and topological data analysis for biomedical image processing, nuclear fusion reactors engineering and design, and lab-on-a-chip biosensors.

The subjects of the scientific activity may be summarized as follows:

1. Research and development of electromagnetic simulators:
 - 1.1 Development of new mass matrices (i.e. discrete Hodge operators) for meshes formed by tetrahedra, prisms, hexahedra or general polyhedra
 - 1.2 Development of new formulations for electromagnetic problems ranging from statics (electrostatics, stationary conduction, magnetostatics) to low frequency (eddy currents, electro-quasistatics) based on DGA
 - 1.3 Development of novel formulations for multi-physics problems to solving coupled problems (in particular, electrostatic-Schrodinger equation for nanoelectronics, electrostatic-elastostatics for MEMS devices, stationary conduction-ButlerVolmer equation for fuel cells modeling)
 - 1.4 Solution of problems of electromagnetic propagation both in time and in frequency domain
2. Topological data analysis
 - 2.1 Topological data analysis for biomedical image processing, image segmentation by using current flows, skeletonization and thinning
 - 2.2 Computational topology for computational electromagnetics, development of complementary formulations and novel efficient algorithms for finding the so-called “cuts” and “links” for the solution of static and quasi-static electromagnetic problems
3. Non destructive testing, inverse problems and imaging
 - 3.1 Detection of flaws in metals with efficient electromagnetic solvers and inverse problem solutions based on multi-frequency and on total variation regularization
 - 3.2 Imaging in lab-on-a-chip devices
 - 3.3 Biosensors and applications of electromagnetic simulation in biomedical engineering.
4. Optimization of electric devices (for example insulator spacers in the design of the neutral beam injector (NBI) of ITER), magnetic devices (position sensors, wireless power transfer systems, etc) and photonics (optimization of photonic crystals).

Academic Visits

- **Tampere University of Technology** Tampere, Finland
Department of Electrical Engineering, prof. Lauri Kettunen Mar–Jul, 2005
- **Université de Liège** Liège, Belgium
Department of Electrical Engineering and Computer Science, prof. Patrick Dular Nov, 2005
- **Boston University** Boston, MA, USA
Department of Electrical & Computer Engineering, prof. Robert P. Kotiuga May–Jul, 2006

- **Jagiellonian University** Krakow, Poland
Department of Mathematics and Computer Science, prof. Marian Mrozek Mar, 2009
- **Trento University** Trento, Italy
Department of Mathematics, prof. Alberto Valli Jun, 2012
- **Fondazione Bruno Kessler (FBK) - CIRM Visiting Professor** Trento, Italy
Centro Internazionale per la Ricerca Matematica (CIRM), prof. Alberto Valli Mar, 2013
- **Trento University** Trento, Italy
Department of Mathematics, prof. Alberto Valli July, 2014
- **Montpellier University - CNRS Visiting Professor** Montpellier, France
Institut Montpellierain Alexander Grothendieck, prof. Daniele A. Di Pietro Mar–Jun, 2015
- **Trento University** Trento, Italy
Department of Mathematics, prof. Ana Alonso Jul, 2015
- **Trento University** Trento, Italy
Department of Mathematics, prof. Enrico Bertolazzi Sep, 2015
- **Trento University** Trento, Italy
Department of Mathematics, prof. Riccardo Ghiloni Feb, 2016
- **Technische Universität Darmstadt** Darmstadt, Germany
Institut für Theorie Elektromagnetischer Felder (TEMF), prof. De Gersem Feb, 2016
- **Montpellier University - ANR Visiting Professor** Montpellier, France
Institut Montpellierain Alexander Grothendieck, prof. Daniele A. Di Pietro Mar, 2016
- **Trento University** Trento, Italy
Department of Mathematics, prof. A. Alonso May, 2016
- **Montpellier University** Montpellier, France
Institut Montpellierain Alexander Grothendieck, prof. Daniele A. Di Pietro June, 2017
- **Trento University** Trento, Italy
Department of Mathematics, prof. R. Ghiloni May, 2018

Patents

- [PT1] A. Affanni, M. Cozzi, L. De Marco, M. Mazzucato, R. Specogna, F. Trevisan, *Metodo per l'analisi del processo di formazione di aggregati in un fluido biologico e relativa apparecchiatura di analisi*, Domanda di brevetto in Italia UD2012A000079 del 5/12/2012. Concesso il 5/11/2014 con numero 1411777. Esteso con domanda PCT WO2013164676 del 3/12/2013, *Method to analyze the cluster formation process in a biological fluid and corresponding analysis apparatus*. Nazionalizzato con domanda di brevetto europeo EP2845002 e concesso in data 13/07/2016; convalidato in Francia (F), Regno Unito (UK), Svizzera (CH) e Germania (D).
- [PT2] A. Affanni, M. Battiston, L. De Marco, M. Mazzucato, R. Specogna, F. Trevisan, *Apparecchiatura per l'analisi del processo di formazione di aggregati in un fluido biologico e relativo metodo di analisi*. Domanda di brevetto in Italia ITUD20130047 del 3/4/2013. Concesso il 31/7/2015 con numero 1417286. Esteso con domanda PCT WO2014162285 del 3/4/2014, *Apparatus for analyzing the process of formation of aggregates in a biological fluid and corresponding method of analysis*. Nazionalizzato con domanda di brevetto europeo EP2981818, pubblicata in data 10/02/2016 e con domanda di brevetto statunitense US2016047827, pubblicata in data 18/02/2016.
- [PT3] G. Qama, M. Passarotto, R. Specogna, *Position sensors coil optimization*, US20190128702A1, provisional patent 01/11/2017, filed 29/06/2018, granted on 02/05/2019.

- [J1] T. Rollo, F. Blanchini, G. Giordano, R. Specogna, D. Esseni, *Stabilization of negative capacitance in ferroelectric capacitors with and without a metal interlayer*, *Nanoscale*, 2020, in press.
- [J2] R. Specogna, *A novel mixed-hybrid formulation for magnetostatics*, *IEEE Trans. Magn.*, 2020, in press.
- [J3] F. Bellina, R. Specogna, *Diagonal material matrices for arbitrary simplicial meshes for solving Poisson problems with one unknown per element*, *IEEE Trans. Magn.*, 2020, in press.
- [J4] M. Passarotto, R. Specogna, *Cyclic Symmetry in Volume Integral Formulations for Eddy Currents: Cohomology Computation and Gauging*, *IEEE Trans. Magn.*, 2020, in press.
- [J5] M. Passarotto, R. Specogna, C. Geuzaine, *Fast Iterative Schemes for the Solution of Eddy Current Problems Featuring Multiple Conductors by Integral Formulations*, *IEEE Trans. Magn.*, 2020, in press.
- [J6] L. Codecasa, B. Kapidani, R. Specogna, *The Time Domain Cell Method is a Coupling of Two Explicit Discontinuous Galerkin Schemes with Continuous Fluxes*, *IEEE Trans. Magn.*, 2020, in press.
- [J7] P. Dlotko, B. Kapidani, S. Pitassi, R. Specogna *Fake conductivity or cohomology: Which to use when solving eddy current problems with h-formulations?*, *IEEE Transactions on Magnetics*, Vol. 55, No. 6, 7204104, 2019.
- [J8] L. Marrelli, G. Marchiori, P. Bettini, R. Cavazzana, B. Kapidani, L. Grando, N. Marconato, R. Specogna, D. Voltolina *Optimization of RFX-mod2 gap configuration by estimating the magnetic error fields due to the passive structure currents*, *Fusion Engineering and Design*, Vol. 146, Part A, pp. 680-683, 2019.
- [J9] M. Passarotto, R. Specogna, F. Trevisan *Novel geometrically defined mass matrices for tetrahedral meshes*, *IEEE Transactions on Magnetics*, Vol. 55, No. 6, 7200904, 2019.
- [J10] B. Kapidani, M. Passarotto, R. Specogna *Exploiting cyclic symmetry in stream function based boundary integral formulations*, *IEEE Transactions on Magnetics*, Vol. 55, No. 6, 7200504, 2019.
- [J11] A. Affanni, R. Specogna, F. Trevisan *Estimating the volume of unknown inclusions in an electrically conducting body with voltage measurements*, *Sensors*, Vol. 19, 637, 2019, regular paper.
- [J12] L. Codecasa, B. Kapidani, R. Specogna, F. Trevisan *Novel FDTD Technique over Tetrahedral Grids for Conductive Media*, *IEEE Transactions on Antennas and Propagation*, Vol. 66, No. 10, pp. 5387-5396, 2018, regular paper.
- [J13] A. Alonso Rodriguez, E. Bertolazzi, R. Ghiloni, R. Specogna, *Efficient construction of 2-chains representing a basis of $H_2(\Omega, \partial\Omega; \mathbb{Z})$* , *Advances in Computational Mathematics*, DOI: 10.1007/s10444-018-9588-6, preprint available on arXiv, in press, 2018.
- [J14] N. Pilan, A. Kojima, R. Nishikiori, M. Ichikawa, J. Hiratsuka, R. Specogna, A. De Lorenzi, M. Bernardi, L. Lotto, P. Bettini, M. Kashiwagi, *Numerical experimental benchmarking of a probabilistic code for prediction of Voltage Holding in High Vacuum*, *IEEE Transactions on Plasma Science*, Vol. 46, No. 5, pp. 1580-1586, 2018.

- [J15] A. Khebir, P. Dłotko, B. Kapidani, A. Kouki, R. Specogna, *T- Ω formulation with higher order hierarchical basis functions for non simply connected conductors*, *Mathematical Problems in Engineering*, Vol. 2018, 8308643, 2018.
- [J16] P. Bettini, M. Passarotto, R. Specogna, *Iterative solution of eddy current problems on polyhedral meshes*, *IEEE Transactions on Magnetics*, Vol. 54, No. 3, 7202304, 2018.
- [J17] P. Bettini, N. Pilan, N. Marconato, R. Specogna, *Goal-oriented adaptivity for voltage breakdown prediction*, *IEEE Transactions on Magnetics*, Vol. 54, No. 3, 7202404, 2018.
- [J18] M. Cicuttin, L. Codecasa, B. Kapidani, R. Specogna, F. Trevisan, *GPU accelerated time domain discrete geometric approach method for Maxwell's equations on tetrahedral grids*, *IEEE Transactions on Magnetics*, Vol. 54, No. 3, 7203004, 2018.
- [J19] P. Dłotko, B. Kapidani, R. Specogna, *Lean cohomology computation for electromagnetic modeling*, *IEEE Transactions on Magnetics*, Vol. 54, No. 3, 7400404, 2018.
- [J20] P. Bettini, M. Passarotto, R. Specogna, *Coupling volume and surface integral formulations for eddy currents*, *IEEE Transactions on Magnetics*, Vol. 54, No. 3, 7203604, 2018.
- [J21] N. Marconato, A. De Lorenzi, N. Pilan, P. Bettini, R. Specogna, A. Lawall, N. Wenzel, *Prediction of Lightning Impulse Voltage Induced Breakdown in Vacuum Interrupters*, *IEEE Transactions on Dielectrics and Electrical Insulation*, Vol. 24, No. 6, pp. 3367-3373, 2017, regular paper.
- [J22] P. Bettini, P. Alotto, R. Cavazzana, L. Grandò, G. Marchiori, L. Marrelli, R. Specogna, P. Zanca, *3D electromagnetic analysis of the MHD control system in RFX-mod upgrade*, *Fusion Engineering and Design*, Vol. 123, pp. 612-615, 2017.
- [J23] P. Bettini, C. Finotti, L. Grandò, G. Marchiori, R. Specogna, *Modeling of the magnetic field errors of RFX-mod upgrade*, *Fusion Engineering and Design*, Vol. 123, pp. 518-521, 2017.
- [J24] D. De Zanet, M. Battiston, E. Lombardi, R. Specogna, F. Trevisan, L. De Marco, A. Affanni, M. Mazzucato, *Impedance biosensor for real-time monitoring and prediction of thrombotic individual profile in flowing blood*, *PLoS ONE*, Vol. 12, No. 9, e0184941, 2017.
- [J25] O. Badami, D. Lizzit, R. Specogna, D. Esseni, *Improved surface-roughness scattering and mobility models for multi-gate FETs with arbitrary cross-section and biasing scheme*, *Journal of Applied Physics*, Vol. 121, 245301, 2017, regular paper.
- [J26] A. Alonso Rodriguez, E. Bertolazzi, R. Ghiloni, R. Specogna, *Efficient construction of 2-chains with a prescribed boundary*, *SIAM Journal on Numerical Analysis (SINUM)*, Vol. 55, No. 3, pp. 1159-1187, 2017 regular paper.
- [J27] M. Cicuttin, L. Codecasa, R. Specogna, F. Trevisan, *A geometric frequency-domain wave propagation formulation for fast convergence of iterative solvers*, *IEEE Transactions on Magnetics*, Vol. 53, No. 6, 7206404, 2017.
- [J28] D.A. Di Pietro, B. Kapidani, R. Specogna, F. Trevisan, *An arbitrary-order discontinuous skeletal method for solving electrostatics on general polyhedral meshes*, *IEEE Transactions on Magnetics*, Vol. 53, No. 6, 7402404, 2017.
- [J29] P. Bettini, M. Passarotto, R. Specogna, *A volume integral formulation for solving eddy current problems on polyhedral meshes*, *IEEE Transactions on Magnetics*, Vol. 53, No. 6, 7204904, 2017.
- [J30] P. Dłotko, B. Kapidani, R. Specogna, *Topoprocessor: an efficient computational topology toolbox for h-oriented eddy current formulations*, *IEEE Transactions on Magnetics*, Vol. 53, No. 6, 7204404, 2017.

- [J31] M. Cicuttin, R. Specogna, F. Trevisan, *Adaptivity based on the constitutive error for the Maxwell's eigenvalue problem on polyhedral meshes*, IEEE Transactions on Magnetics, Vol. 53, No. 6, 7201004, 2017.
- [J32] P. Bettini, R. Benato, S. Dambone Sessa, R. Specogna, *T- Ω formulation for eddy current problems with periodic boundary conditions*, IEEE Transactions on Magnetics, Vol. 53, No. 6, 7201604, 2017.
- [J33] D.A. Di Pietro, R. Specogna, *An a posteriori-driven adaptive Mixed High-Order method with application to electrostatics*, Journal of Computational Physics, Vol. 326, pp. 35-55, 2016, regular paper.
- [J34] B. Kapidani, P. Dłotko, P. Alotto, P. Bettini, R. Specogna, *Computation of relative 1-cohomology generators from a 1-homology basis for eddy currents boundary integral formulations*, IEEE Trans. Magn., Vol. 52, No. 10, 7210006, 2016, regular paper.
- [J35] S. Chialina, M. Cicuttin, L. Codecasa, G. Solari, R. Specogna, F. Trevisan, *Modeling of anechoic chambers with equivalent materials and equivalent sources*, IEEE Transactions on Electromagnetic Compatibility, in press, 2016, regular paper.
- [J36] L. Codecasa, R. Specogna, F. Trevisan, *Geometrically defined basis functions for polyhedral elements with applications to computational electromagnetics*, ESAIM: Mathematical Modelling and Numerical Analysis (M2AN), in press, 2015, invited paper.
- [J37] P. Bettini, P. Dłotko, R. Specogna, *A boundary integral method for computing eddy currents in non-manifold thin conductors*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7203104, 2016.
- [J38] R. Specogna, *Lean complementarity for Poisson problems*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7206904, 2016.
- [J39] R. Specogna, *Fast frequency and material properties sweeps for quasi-static problems*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7202704, 2016.
- [J40] M. Cicuttin, L. Codecasa, R. Specogna, F. Trevisan, *Excitation by scattering/total field decomposition and uniaxial PML in the geometric formulation*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7202204, 2016.
- [J41] P. Alotto, P. Bettini, R. Specogna, *Sparsification of BEM matrices for large-scale eddy current problems*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7203204, 2016.
- [J42] M. Cicuttin, L. Codecasa, R. Specogna, F. Trevisan, *Complementary discrete geometric h-field formulation for wave propagation problems*, IEEE Transactions on Magnetics, Vol. 52, No. 3, 7202504, 2016.
- [J43] A. Affanni, G. Chiorboli, R. Specogna, F. Trevisan, *Uncertainty model of electro-optical thrombus growth estimation for early risk detection*, Measurement, Vol. 79, pp. 260-266, 2016.
- [J44] P. Bettini, M. Furno Palumbo, R. Specogna, *A boundary element method for eddy-current problems in fusion devices*, Fusion Engineering and Design, Vol. 9697, pp. 620-623, 2015.
- [J45] S. Mastrostefano, P. Bettini, T. Bolzonella, M. Furno Palumbo, Y.Q. Liu, G. Matsunaga, R. Specogna, M. Takechi, F. Villone, *Three-dimensional analysis of JT-60SA conducting structures in view of RWM control*, Fusion Engineering and Design, Vol. 9697, pp. 659-663, 2015.
- [J46] P. Bettini, R. Specogna, *A novel approach for solving three dimensional eddy current problems in fusion devices*, Fusion Engineering and Design, Vol. 9697, pp. 703-706, 2015.

- [J47] R. Specogna, *One stroke complementarity for Poisson-like problems*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7401404, 2015.
- [J48] R. Specogna, *Diagonal discrete Hodge operators for simplicial meshes using the signed dual complex*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7400904, 2015.
- [J49] P. Dłotko, B. Kapidani, R. Specogna, *Fast computation of cuts with reduced support by solving maximum circulation problems*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7202004, 2015.
- [J50] S. Chialina, M. Cicuttin, L. Codecasa, R. Specogna, F. Trevisan, *Port boundary conditions for discrete electromagnetic problems in the frequency domain*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7203504, 2015.
- [J51] P. Bettini, T. Bolzonella, A. Ferro, M. Furno Palumbo, S. Mastrostefano, G. Matsunaga, R. Specogna, M. Takechi, F. Villone, *Advanced computational tools for the characterization of the dynamic response of MHD control systems in large fusion devices*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7204105, 2015.
- [J52] P. Bettini, R. Specogna, *A boundary integral method for computing eddy currents in thin conductors of arbitrary topology*, IEEE Transactions on Magnetics, Vol. 51, No. 3, 7203904, 2015.
- [J53] P. Dłotko, R. Specogna, *Topology preserving thinning for cell complexes*, IEEE Transactions on Image Processing, Vol. 23, No. 10, pp. 4486-4495, 2014, regular paper.
- [J54] P. Bettini, R. Specogna, *Computation of stationary 3D halo currents in fusion devices with accuracy control*, Journal of Computational Physics, Vol. 273, pp. 100117, 2014, regular paper.
- [J55] A. Paussa, R. Specogna, D. Esseni, F. Trevisan, *Discrete Geometric Approach for Modelling Quantization Effects in Nanoscale Electron Devices*, Journal of Computational Electronics, Vol. 13, No. 1, pp. 287-299, 2014, regular paper.
- [J56] P. Dłotko, R. Specogna, *Lazy cohomology generators: a breakthrough in (co)homology computations for CEM*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7014204, 2014.
- [J57] A. Affanni, G. Chiorboli, L. Codecasa, M.R. Cozzi, L. De Marco, M. Mazzucato, C. Morandi, R. Specogna, M. Tartagni, F. Trevisan, *A novel inversion technique for imaging thrombus volume in microchannels fusing optical and impedance data*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7025304, 2014.
- [J58] P. Bettini, N. Pilan, R. Specogna, *A novel tool for breakdown probability predictions on multi-electrode multi-voltage systems*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7002104, 2014.
- [J59] P. Bettini, R. Specogna, *Lazy cohomology generators enable the use of complementarity for computing halo current resistive distribution in fusion reactors*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7012004, 2014.
- [J60] R. Specogna, F. Trevisan, *Geometry of the 3D Schroedinger problem and comparison with Finite Elements discretization*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7004504, 2014.
- [J61] P. Bettini, L. Marrelli, R. Specogna, *Calculation of 3D magnetic fields produced by MHD active control systems in fusion devices*, IEEE Transactions on Magnetics, Vol. 50, No. 2, 7000904, 2014.
- [J62] R. Specogna, *Extraction of VLSI multiconductor transmission line parameters by complementarity*, IEEE Transactions on Very Large Scale Integration (VLSI) Systems, Vol. 22, No. 1, pp. 146-154, 2014, regular paper.

- [J63] A. Affanni, R. Specogna, F. Trevisan, *Combined electro-optical imaging for the time evolution of white thrombus growth in artificial capillaries*, IEEE Transactions on Instrumentation and Measurement, Vol. 62, No. 11, pp. 2954-2959, 2013, regular paper.
- [J64] P. Bettini, A. De Lorenzi, N. Pilan, R. Specogna, *Voltage holding optimization of the MITICA electrostatic accelerator*, Fusion Engineering and Design, Vol. 88, No. 6-8, 2013, pp. 1038-1041.
- [J65] R. Albanese, P. Bettini, N. Marconato, M. Furno Palumbo, S. Peruzzo, G. Rubinacci, R. Specogna, S. Ventre, F. Villone, *Numerical modeling of 3D halo current path in ITER structures*, Fusion Engineering and Design, Vol. 88, No. 68, 2013, pp. 529-532.
- [J66] P. Dłotko, R. Specogna, *Physics inspired algorithms for (co)homology computations of three-dimensional combinatorial manifolds with boundary*, Computer Physics Communications (CPC), Vol. 184, No. 10, 2013, pp. 2257-2266, regular paper.
- [J67] R. Specogna, *Optimal cohomology generators for 2d eddy-current problems in linear time*, IEEE Transactions on Magnetics, Vol. 49, No. 4, 2013, pp. 1299-1304, regular paper.
- [J68] P. Dłotko, R. Specogna, *A novel technique for cohomology computations in engineering practice*, Computer Methods in Applied Mechanics and Engineering (CMAME), Vol. 253, 2013, pp. 530-542, regular paper.
- [J69] P. Dłotko, R. Specogna, *Cohomology in 3d magneto-quasistatic modeling*, Communications in Computational Physics, Vol. 14, No. 1, 2013, pp. 48-76, regular paper.
- [J70] A. Affanni, R. Specogna, F. Trevisan, *A geometric approach to cell membrane and contact impedance modeling*, IEEE Transactions on Biomedical Engineering, Vol. 59, No. 9, 2012, pp. 2619-2627, regular paper.
- [J71] L. Codecasa, R. Specogna, F. Trevisan, *Discrete geometric formulation of admittance boundary conditions for frequency domain problems*, IEEE Transactions on Antennas and Propagation, Vol. 60, No. 8, 2012, pp. 3998-4002, regular paper.
- [J72] D. Breda, D. Esseni, A. Paussa, R. Specogna, F. Trevisan, R. Vermiglio, *Comparison between Pseudospectral and Discrete Geometric Methods for Modelling Quantization Effects in Nanoscale Electron Devices*, IEEE Transactions on Magnetics, Vol. 48, 2012, pp. 203-206.
- [J73] F. Moro, R. Specogna, A. Stella, F. Trevisan, *Cathodic Current Density Distribution Modeling in Proton Exchange Membrane Fuel Cells*, IEEE Transactions on Magnetics, Vol. 48, 2012, pp. 699-702.
- [J74] R. Specogna, *Complementary geometric formulations for electrostatics*, International Journal for Numerical Methods in Engineering (IJNME), Vol. 86, 2011, pp. 1041-1068, regular paper.
- [J75] P. Dłotko, R. Specogna, *Efficient generalized source field computation for h-oriented magnetostatic formulations*, Eur. Phys. J.-Appl. Phys. (EPJ-AP), Vol. 53, 2011, 20801, regular paper.
- [J76] R. Specogna, F. Trevisan *A discrete geometric approach to solving time independent Schrödinger equation*, Journal of Computational Physics, Vol. 230, 2011, pp. 1370-1381, regular paper.
- [J77] P. Bettini, M. Midrio, R. Specogna, *Geometric formulation of Maxwell's equations in the frequency domain for 3D wave propagation problems in unbounded regions*, CMES: Computer Modeling in Engineering & Sciences, Vol. 66, No. 2, 2010, pp. 117-134, regular paper.
- [J78] L. Codecasa, P. Dular, R. Specogna, F. Trevisan, *A non-destructive testing application solved with $A - \chi$ geometric eddy-current formulation*, International Journal for Computation and Mathematics in Electrical Engineering (COMPEL), Vol. 29, No. 6, 2010, pp. 1606-1615.

- [J79] R. Specogna, P. Dular, F. Trevisan, *A perturbation method for the $A - \chi$ geometric eddy-current formulation*, Eur. Phys. J.-Appl. Phys. (EPJ-AP), Vol. 52, 2010, 23309.
- [J80] P. Dłotko, R. Specogna, *Critical analysis of the spanning tree techniques*, SIAM Journal of Numerical Analysis (SINUM), Vol. 48, No. 4, 2010, pp. 1601-1624, regular paper.
- [J81] P. Dłotko, R. Specogna, *Efficient cohomology computation for electromagnetic modeling*, CMES: Computer Modeling in Engineering & Sciences, Vol. 60, No. 3, 2010, pp. 247-278, regular paper.
- [J82] L. Codecasa, R. Specogna, F. Trevisan, *A New Set of Basis Functions for the Discrete Geometric Approach*, Journal of Computational Physics, Vol. 229, 2010, pp. 74017410, regular paper.
- [J83] L. Codecasa, P. Dular, R. Specogna, F. Trevisan, *Time-domain geometric eddy-current A formulation for hexahedral grids*, IEEE Transactions on Magnetics, Vol. 46, No. 8, August 2010, pp. 3301-3304.
- [J84] P. Bettini, R. Specogna, F. Trevisan, *A Discrete Geometric Approach to solving 2D non-linear magnetostatic problems*, IEEE Transactions on Magnetics, Vol. 46, No. 8, August 2010, pp. 3049-3052.
- [J85] L. Codecasa, P. Dular, R. Specogna, F. Trevisan, *A perturbation method for the $T - \Omega$ eddy-current formulation*, IEEE Transactions on Magnetics, Vol. 46, No. 8, August 2010, pp. 3045-3048.
- [J86] P. Dłotko, R. Specogna, F. Trevisan, *Voltage and current sources for massive conductors suitable with the $A - \chi$ Geometric Formulation*, IEEE Transactions on Magnetics, Vol. 46, No. 8, August 2010, pp. 3069-3072.
- [J87] L. Codecasa, R. Specogna, F. Trevisan, *Constitutive Relations for Discrete Geometric Approach over Hexahedral Grids*, IEEE Transactions on Magnetics, Vol. 46, No. 8, August 2010, pp. 3077-3080.
- [J88] L. Codecasa, R. Specogna, F. Trevisan, *A geometric integral formulation for eddy-currents*, International Journal for Numerical Methods in Engineering (IJNME), Vol. 82, No. 13, 2010, pp. 1720-1736, regular paper.
- [J89] P. Dłotko, R. Specogna, F. Trevisan, *Automatic generation of cuts on large-sized meshes for $T - \Omega$ geometric eddy-current formulation*, Computer Methods in Applied Mechanics and Engineering (CMAME), Vol. 198, 2009, pp. 37653781, regular paper.
- [J90] L. Codecasa, R. Specogna, F. Trevisan, *Subgridding to Solving Magnetostatics within Discrete Geometric Approach*, IEEE Transactions on Magnetics, Vol. 45, Iss. 3, 2009, pp. 1024-1027.
- [J91] P. Bettini, R. Specogna, F. Trevisan, *Electroquasistatic analysis of the Gas Insulated Line for the ITER Neutral Beam Injector*, IEEE Transactions on Magnetics, Vol. 45, Iss. 3, 2009, pp. 996-999.
- [J92] P. Bettini, S. Boscolo, M. Midrio, R. Specogna, *Design optimization of waveguide bends in photonic crystals*, IEEE Transactions on Magnetics, Vol. 45, Iss. 3, 2009, pp. 1630-1633.
- [J93] A. De Lorenzi, L. Grando, A. Pesce, P. Bettini, R. Specogna, *Modeling of epoxy resin spacers for the 1 MV dc gas insulated line of ITER neutral beam injector system*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol.16, No.1, 2009, pp. 77-87, regular paper.
- [J94] L. Codecasa, R. Specogna, F. Trevisan, *Base functions and discrete constitutive relations for staggered polyhedral grids*, Computer Methods in Applied Mechanics and Engineering (CMAME), Vol. 198, Iss. 9-12, 2009, pp. 1117-1123, regular paper.

- [J95] R. Specogna, F. Trevisan, *Advanced Geometric Formulations for the Design of a Long Defects Detection System*, *Nondestructive Testing and Evaluation*, Vol. 24, Issue 1, 2009, pp. 192-207, invited paper.
- [J96] P. Bettini, E. Brusa, M. Munteanu, R. Specogna and F. Trevisan, *Innovative numerical methods for nonlinear MEMS: the Non-Incremental FEM vs. the Discrete Geometric Approach*, *CMES: Computer Modeling in Engineering & Sciences*, Vol.33, No.3, 2008, pp. 215-242, regular paper.
- [J97] L. Codecasa, R. Specogna, F. Trevisan, *Discrete constitutive equations over hexahedral grids for eddy-current problems*, *CMES: Computer Modeling in Engineering & Sciences*, Vol.31, No.3, 2008, pp. 129-144, regular paper.
- [J98] E. Cardelli, A. Faba, A. Formisano, R. Martone, F. C. Morabito, M. Papais, A. Pirani, M. Ricci, R. Specogna, A. Tamburrino, F. Trevisan, M. Versaci and S. Ventre, *The AMDE project: 3D volumetric anomalies reconstruction by eddy current testing*, *International Journal of Applied Electromagnetics and Mechanics (IJAEM)*, Vol. 28, N. 1-2, 2008, pp. 321-327.
- [J99] P. Bettini, E. Brusa, M. Munteanu, R. Specogna, F. Trevisan, *Static behaviour prediction of microelectrostatic actuators by discrete geometric approaches*, *IEEE Transaction on Magnetics*, Vol. 44, Iss. 6, June 2008, pp. 1606-1609.
- [J100] R. Specogna, F. Trevisan, *Eddy-currents computation with $T - \Omega$ discrete geometric formulation for a NDE problem*, *IEEE Transaction on Magnetics*, Vol. 44, Iss. 6, June 2008, pp. 698-701.
- [J101] P. Dular, R. Specogna, F. Trevisan, *Constitutive matrices using hexahedra in a discrete approach for eddy currents*, *IEEE Transaction on Magnetics*, Vol. 44, Iss. 6, June 2008, pp. 694-697.
- [J102] F. Henrotte, R. Specogna, F. Trevisan, *Reinterpretation of the Nodal Force Method within discrete geometric approaches*, *IEEE Transaction on Magnetics*, Vol. 44, Iss. 6, June 2008, pp. 690-693.
- [J103] A. Pirani, M. Ricci, R. Specogna, A. Tamburrino, F. Trevisan, *Multi-frequency identification of defects in conducting media*, *Inverse Problems* 24, 035011, 2008, regular paper.
- [J104] R. Specogna, S. Suuriniemi and F. Trevisan, *Geometric $T - \Omega$ approach to solve eddy-currents coupled to electric circuits*, *International Journal for Numerical Methods in Engineering*, Vol. 74, Iss. 1, Pages 101-115, 2 April 2008, regular paper.
- [J105] A. De Lorenzi, L. Grando, R. Gobbo, G. Pesavento, P. Bettini, R. Specogna and F. Trevisan, *The insulation structure of the 1 MV transmission line for the ITER neutral beam injector*, *Fusion Engineering and Design*, Volume 82, Issues 5-14, October 2007, pp. 836-844.
- [J106] E. Cardelli, A. Faba, R. Specogna, F. Trevisan, *Image Reconstruction of Defects in Metallic Plates Using a Multi-Frequency Detector System and a Discrete Geometric Approach*, *IEEE Transaction on Magnetics*, Volume 43, Issue 4, April 2007, pp. 1857- 1860.
- [J107] L. Codecasa, R. Specogna, F. Trevisan, *Symmetric positive-definite constitutive matrices for discrete eddy-current problems*, *IEEE Transaction on Magnetics*, Volume 43, Issue 2, Part 1, Feb. 2007, pp. 510-515, regular paper.
- [J108] P. Dular, R. Specogna, F. Trevisan *Coupling between circuits and $A - \chi$ discrete geometric formulation*, *IEEE Transaction on Magnetics*, Volume 42, Issue 4, April 2006, pp. 1043-1046.
- [J109] P. Bettini, S. Boscolo, R. Specogna, F. Trevisan, *A geometric approach for wave propagation in 2-D photonic crystals in the frequency domain*, *IEEE Transaction on Magnetics*, Volume 42, Issue 4, April 2006, pp. 827-830.

- [J110] P. Alotto, R. Specogna, F. Trevisan, *A θ -method for eddy currents in time domain with a discrete geometric approach*, IEEE Transaction on Magnetics, Volume 42, Issue 4, April 2006, pp. 779-782.
- [J111] R. Specogna, F. Trevisan, *Voltage sources with $A - \chi$ discrete Geometric Approach to eddy-currents*, Eur. Phys. J.-Appl. Phys. (EPJ-AP), Vol. 33, 2006, pp. 97-101, regular paper.
- [J112] E. Cardelli, A. Faba, R. Specogna, A. Tamburrino, F. Trevisan, S. Ventre, *Analysis Methodologies and Experimental Benchmarks for ECT*, IEEE Transaction on Magnetics, Volume 41, Issue 5, May 2005, pp. 1380-1383.
- [J113] R. Specogna, F. Trevisan, *Discrete constitutive equations in $A - \chi$ geometric eddy-currents formulation*, IEEE Transaction on Magnetics, Volume 41, Issue 4, April 2005, pp. 1259-1263, regular paper.

Book chapters published in international books

- [B1] M. Buonsanti, P. Bettini, A. Calcagno, E. Cardelli, M. Cioffi, E. Coccorese, P. di Barba, A. Faba, F. Ferraioli, L. Ferrigno, A. Formisano, M. Laracca, R. Martone, F.C. Morabito, M. Morozof, G. Rubinacci, A. Savini, R. Specogna, A. Stella, A. Tamburrino, F. Trevisan, S. Ventre, M. Versaci, F. Villone, *Solution of direct and inverse problems in NDE: the MADEND Project*, in E'NDE, Electromagnetic Non-destructive Evaluation (IX), N. Bowler and Udpa (Eds.), IOS Press, 2005, ISBN: 1-58603-522-3.
- [B2] R. Specogna, F. Trevisan, *Progress Report in Discrete Electromagnetism*, Advanced Computational Electromagnetism Seminar 2005 (ACE05), L. Kettunen (Ed.), Tampere, Finland, ISBN 952-15-1482-5.
- [B3] M. Papais, R. Specogna, F. Trevisan, E. Cardelli, A. Faba, A. Tamburrino, S. Ventre, R. Martone, A. Formisano, F. C. Morabito, M. Versaci, *Design of a system for the long defects detection with advanced methods for eddy-currents analysis*, in E'NDE, Electromagnetic Non-destructive Evaluation (XI), A. Tamburrino, Y. Melikhov (Eds.), IOS Press, 2008, pp. 195-202, ISBN: 978-1-58603- 896-0.
- [B4] P. Dlotko, R. Specogna, F. Trevisan, *A homological algorithm for the automatic generation of cuts suitable for $T - \Omega$ eddy-current geometric formulation*, Advanced Computational Electromagnetism (ACE) Seminar 2009, Accademia dei Lincei, Rome, Italy, pp. 780-801, ISBN 978- 952-15-2300-7, ISSN 1459-3270.
- [B5] L. Codecasa, R. Specogna, F. Trevisan, *Constitutive matrices over polyhedral grids for discrete geometric approaches*, Advanced Computational Electromagnetism (ACE) Seminar 2009, Accademia dei Lincei, Rome, Italy, pp. 614-629, ISBN 978-952-15-2300-7, ISSN 1459-3270.

Selected proceedings of international conferences with reviewers and Italian Journals

- [SC1] M. Buonsanti, P. Bettini, A. Calcagno, E. Cardelli, M. Cioffi, E. Coccorese, P. di Barba, A. Faba, F. Ferraioli, L. Ferrigno, A. Formisano, M. Laracca, R. Martone, F.C. Morabito, M. Morozof, G. Rubinacci, A. Savini, R. Specogna, A. Stella, A. Tamburrino, F. Trevisan, S. Ventre, M. Versaci, F. Villone, *New trends in ECT applications from the MADEND project*, PIER Progress in Electromagnetic Research Symposium 2004, Pisa, Italy, March 28-31, pp. 715-718.

- [SC2] M. Buonsanti, P. Bettini, A. Calcagno, E. Cardelli, M. Cioffi, E. Coccorese, P. di Barba, A. Faba, F. Ferraioli, L. Ferrigno, A. Formisano, M. Laracca, R. Martone, F.C. Morabito, M. Morozof, G. Rubinacci, A. Savini, R. Specogna, A. Stella, A. Tamburrino, F. Trevisan, S. Ventre, M. Versaci, F. Villone *Direct and inverse electromagnetic methodologies: the proposal of MADEND project for ECT analysis*, PIER Progress in Electromagnetic Research Symposium 2004, Pisa, Italy, March 28 - 31, pp. 731-734.
- [SC3] R. Specogna, F. Trevisan, *Voltage Driven coils within a Discrete Geometric Approach to 3D eddycurrents*, 11th IGTE Symposium on Numerical Fields Calculation, 2004 Graz, Austria, 12-15/09/2004, pp. 81-85.
- [SC4] E. Cardelli, A. Faba, R. Specogna, F. Trevisan, *Feasibility Studies for the Detection of Long Defects in Hot Rods*, p. 307, Proc. of IEEE CEFC 06, Miami.
- [SC5] P. Dular, R. Specogna, F. Trevisan, *Constitutive matrices using hexahedra in a discrete approach for eddy currents*, p.185, Proc. of IEEE CEFC 06, Miami.
- [SC6] M. Ricci, R. Specogna, F. Trevisan, P. Burrascano, A. Pirani, *Image Reconstruction of Defects in Metallic Plates Using a Multi-frequency Detector System and a Discrete Geometric Approach*, 9th Workshop on optimization and Inverse Problems in Electromagnetism (OIPE), pp. 73-74, September 13-15th 2006, Sorrento, Italy.
- [SC7] A. De Lorenzi, L. Grando, R. Gobbo, G. Pesavento, P. Bettini, R. Specogna, F. Trevisan, *The insulation structure of the 1 Megavolt transmission line for the ITER neutral beam injector*, 24th Symposium on Fusion Technology (SOFT), 11-15 September 2006, Warsaw, Poland.
- [SC8] E. Cardelli, V. Cutrupi, A. Faba, F. Ferraioli, A. Formisano, R. Martone, F.C. Morabito, M. Papais, R. Specogna, A. Tamburino, F. Trevisan, S. Ventre, M. Versaci, *Optimized design of measurement system for non destructive testing applications*, ISEF 2007 XIII International Symposium on Electromagnetic Fields in Mechatronics, Electrical and Electronic Engineering, Prague, Czech Republic, 13-15/09/2007.
- [SC9] E. Cardelli, A. Faba, A. Formisano, R. Martone, F. C. Morabito, M. Papais, A. Pirani, M. Ricci, R. Specogna, A. Tamburrino, F. Trevisan, M. Versaci and S. Ventre, *The AMDE project: 3D volumetric anomalies reconstruction by eddy current testing*, ISEM 2007.
- [SC10] R. Specogna, P. Dular, F. Trevisan, *A perturbation method for the $A\text{-}\chi$ geometric eddy-current formulation*, NUMELEC 2008, 8-10/12/2008, Liège, Belgium.
- [SC11] A. Stravisi, R. Specogna, S. Kutin, M. Doz, F. Trevisan, E. D'Agaro, *Simulazioni numeriche del campo elettrico nei pesci e in acqua: studio propedeutico all'applicazione della pesca elettrica in mare*, Hydrores Resources, Anno XXIII, n. 28, 2008.
- [SC12] L. Codecasa, P. Dular, R. Specogna, F. Trevisan, *A non-destructive testing application solved with $A\text{-}\chi$ geometric eddy-current formulation*, EMF 2009, 26-29/05/2009, Mondovì (CN), Italy.
- [SC13] L. Codecasa, R. Specogna, F. Trevisan, *The discrete geometric approach for wave propagation problems*, International Conference on Electromagnetics in Advanced Applications (ICEAA) 2009, 14-18/09/2009, Turin, Italy.
- [SC14] D. Fasino, R. Specogna, F. Trevisan, *Level set methods for the reconstruction of electrical conductivity by eddy current imaging*, 16th Conference of the International Linear Algebra Society, Pisa, Italy, June 21-25 2010.

- [SC15] A. Affanni, R. Specogna, F. Trevisan, *Measurement Bench for Impedance Tomography during Hemostasis Process in whole Blood*, *IEEE International Symposium on Medical Measurements and Applications*, MEMEA 2011, Bari, Italy, 30-31 May 2011.
- [SC16] R. Specogna, *The geometric approach to finite elements*, Seminar of modeling and simulation (SeMS), Università Roma Tre, 28-30 June 2011, Rome, Italy, invited presentation.
- [SC17] R. Specogna, *Numerical determination of upper and lower bounds of the transmembrane potential with complementarity*, Electroporation based technologies and treatment (EBTT) 2011, 13-19 November 2011, Ljubljana, Slovenia.
- [SC18] P. Dłotko, (R. Specogna as contributor), *Cohomology computation and applications*, Workshop on Computational Topology, 7-11 November 2011, Fields Institute, Toronto, Canada.
- [SC19] P. Dłotko, R. Specogna, *Cohomology in electromagnetic modeling*, AMS 2012 Joint Mathematics Meetings, AMS Special Session on Generalized Cohomology Theories in Engineering Practice, 4-7 January 2012, Boston, USA.
- [SC20] A. Affanni, R. Specogna, F. Trevisan, *Electrical Impedance Spectroscopy on Flowing Blood to predict White Thrombus Formation in Artificial Microchannels*, *IEEE International Instrumentation and Measurement Technology Conference*, I2MTC 2012, 13-16 May 2012, Graz, Austria.
- [SC21] A. Affanni, R. Specogna, F. Trevisan, *Ex vivo Time Evolution of Thrombus Growth through Optical and Electrical Impedance data fusion*, *J. Phys.: Conf. Ser.*, Vol. 459, 012016, 2013.
- [SC22] P. Bettini, M. Furno Palumbo, R. Specogna, *Numerical modelling of electromagnetic loads on fusion device structures*, *J. Phys.: Conf. Ser.*, Vol. 490, 012078, 2014.
- [SC23] P. Bettini, M. Furno Palumbo, R. Specogna, *A discrete geometric formulation for eddy-current problems in fusion devices*, *J. Phys.: Conf. Ser.*, Vol. 490, 012077, 2014.
- [SC24] A. Affanni, R. Specogna, F. Trevisan, *A novel apparatus for the volume estimation of in vitro thrombus growth*, *International Conference on Microelectronic Test Structures (ICMTS 2014)*, pp. 83–86, 24-27 March 2014.

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In fede,

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