Curriculum vitae

Department of Mathematics "Sapienza" Università di Roma P.le Aldo Moro 2, 00185 Rome, Italy Tel.: 06 49913278 e-mail: garroni@mat.uniroma1.it

# **General Information**

Place and date of birth: Rome, March 22, 1966 Spoken languages: Italian (mother tongue), English (fluent), French (fluent)

# Education

- 1991 University graduation in Mathematics, magna cum laude, Università degli Studi di Roma "La Sapienza", Roma, July 1991. Adviser: Prof. U. Mosco.
- 1993 Magister Philosophiæ in Functional Analysis, magna cum laude, SISSA, Trieste, October 1993. Adviser: Prof. G. Dal Maso.
- 1994 PhD in Functional Analysis, SISSA, Trieste, October 1994. Adviser: Prof. G. Dal Maso.

# Academic positions

- 1995–1998 Ricercatore (Research Associate), Università di Roma "La Sapienza", Faculty of Science.
- 1998–2017 Associate Professor in Mathematical Analysis, Università di Roma "La Sapienza", Department of Mathematics (in service at the Faculty of Architecture "L. Quaroni" until 2011).
- 2017–present Full Professor in Mathematical Analysis, Università di Roma "La Sapienza", Department of Mathematics.

# Appointments

2016–present Coordinator of the Directing Board of the PhD program in Mathematics, Department of Mathematics, Università di Rome "La Sapienza".

# Visiting professorships. Awards

(one-month long visits or longer)

- 1999 Visiting professor at the University of Bonn, Germany (one month).
- 2000 Visiting professor at the University of Paris VI, Paris, France (one month).
- 2004 Visiting professor at the University of Paris XIII, Paris, France (one month).
- 2004 Visiting professor at the Tata Institute of Fundamental Research, Bangalore, India (one month).
- 2013–2014 Visiting professor at the Mathematical Institute, Oxford, UK (one year).
- 2013–2014 Visiting Fellowship at Mansfield College, Oxford, UK (one year).

#### Scholarships

- 1998 CNR-NATO Scholarship at the Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany (two months).
- 2000 CNR-NATO Scholarship at the Courant Institute, NYU, New York, USA (two months).

### Teaching activity

1996-1998 Faculty of Science, Analysis for the degree in Physics

- 1998–present Faculty of Architecture "L. Quaroni" (courses "Matematica 1", "Matematica 2" and "Complementi di Matematica")
- 2011–present Degree in Mathematics (courses "Analisi 1" and "Istituzioni di Analisi Superiore")

Adviser of 11 degree theses

## Teaching-related appointments

- 1999–2005 Member of the Faculty of Architecture committee for foreign students admittance
- 2011–2014 Member of the Schedule Committee for the degree in Mathematics
- 2011–2015 Coordinator of the Faculty of Science for the disabled

### Graduate courses

- 2002 Potential theory and its applications to concentration problems, PhD in Mathematics, Department of Mathematics, University of Rome "La Sapienza".
- 2006 Variational methods for phase transitions, PhD in Mathematics, Department of Mathematics, University of Rome "La Sapienza"
- 2007 Variational methods for dislocations, PhD in Mathematics, Department of Mathematics, University of Rome "Tor Vergata".
- 2015 Variational methods for dislocations, GSSI L'Aquila.

#### Courses in international advanced schools. Lecture series

- 2003 Course Γ-convergence for concentration problems with critical growth, Summer school "School on Concentration Phenomena for Variational Problems", Rome (other courses by G. Alberti, M. Soner, D. Smets).
- 2004: Lecture series on  $\Gamma$ -convergence for concentration problems with critical growth, Tata Institute of Fundamental Research, Bangalore, India.
- 2011: Course Multiscale variational analysis of dislocations at the Conference and Summer School "Ginzburg-Landau equations, Dislocations and Homogenization", Île de Re, France (other courses by C. Le Bris, P. Mironescu, X. Pan, P. Souganidis).
- 2014: A lesson at the "Winter School in PDEs", Oxford.
- 2015: Course *Phase field models for dislocations*, SISSA Trieste (part of a threemonth intensive period on "Variational Methods for Plasticity and Dislocations").

2016: Course Variational methods for crystal defects and plasticity, Summer school "New Frontiers in Nonlinear Analysis for Materials", Carnegie Mellon University, Pittsburgh, USA (other courses by I. Fonseca, R.V. Kohn, R. Kotecki, M. Luskin)

## PhD Theses (adviser)

- 2006 G. Palatucci, "Phase Transition with Line Tension effect", XVIII cycle, University of Rome 3 (now, "ricercatore di tipo B" at University of Parma).
- 2007 S. Cacace, "T-convergence of a phase-transition model for planar dislocations in crystals", XVII cycle, University of Rome "La Sapienza" (now, "assegnista di ricerca" at Sapienza, University of Rome).
- 2014 L. De Luca, "Statics and dynamics of dislocations: A variational approach", XXVI cycle, University of Rome "La Sapienza" (now post doc at TUM, Munich, Germany).
- 2015 D. Sarrocco, "Evolution of microstructures for a damage model" XXVII cycle, University of Rome "La Sapienza" (now on a scholarship at the Master in "Space Science and Technology", University of Rome "Tor Vergata").

#### Membership of editorial boards

- 2016–<br/>present Editorial board, Archive for Rational Mechanics and Analysis <br/>  $\rm IF2015=2.321$
- 2016-present Corresponding editor, ESAIM Control Optim. Calc. Var. IF2015 = 1.127 2013-2016 Associated editor, ESAIM Control Optim. Calc. Var. - IF2015 = 1.127
- 2014-present Editorial board, Acta Applicandae Matematicae IF2015 = 1.047
- 2015–present Scientific and editorial board of the CNR ebook series "Matematica e dintorni" ("Mathematics and surroundings").

## Other academic appointments

- 2008–2016 Member of the Directing Board of the PhD program in Mathematics, Department of Mathematics, University of Rome "La Sapienza".
- 2010–2012 Local coordinator of the University of Rome "La Sapienza" Unit of the PRIN 2008 project "Variational Problems with Multiple Scales".
- 2015–present Member of the Advisory Board for Internationalization of the University of Rome "La Sapienza".
- 2007–2015 Member of the Library Board, Department of Mathematics, University of Rome "La Sapienza".

#### Roles in scientific societies

- 2015–present Member of the Scientific Board of the Unione Matematica Italiana.
- 2016–present Delegate of UMI at the European Mathematical Society (EMS) Council.
- 2016–present Italian member for Analysis of the *Laboratoire International Associè* (LIA), LYSM, based on an agreement between the Aix-Marseille University, the CNRS (Centre National de la Recherche Scientifique), and the Ecole Centrale de Marseille, on the french side, and the INdAM (Istituto Nazionale di Alta Matematica).
- 2016–present Delegate of UMI at the International Council for Industrial and Applied Mathematics (ICIAM).

# Membership of PhD evaluation committees

- 2006 Laura Di Gregorio, "Infinite dimensional hamiltonian systems and nonlinear wave equation: periodic orbits with long minimal period", University of Rome 3.
- 2008 Sasha Weitkamp, "Some problems with singularities arising in physical minimizers of GL-functionals, defects in crystalline materials, naked singularities in general relativity", University of Trento.
- 2014 Tom Hudson, "Stability and regularity of defects in crystalline solids", University of Oxford, UK.
- 2015 Patrick Van Meurs, "Discrete-to-continuum limits of interaction dislocations", TU/e, Eindhoven, Netherlands.
- 2016 Pietro Artale Harris, "On phase transitions in porous media under consolidation: analytic, rigorous and numerical results", SBAI, Sapienza, Universit di Roma.

## Evaluation of international scientific projects

2008 Panelist for the National Science Foundation, USA.

- 2009 Panelist for the National Science Foundation, USA.
- 2012 Referee for the Portuguese Foundation for Science and Technology (FCT).
- 2013 Referee for the Portuguese Foundation for Science and Technology (FCT).

## **Research evaluation activity**

- Referee for many international journals, among which:
  - Comm. Pure Appl. Math., Ann. Sc. Norm. Super. Pisa, SIAM J. Appl. Math., SIAM J. Math. Anal., Comm. Partial Differential Equations, Arch. Ration. Mech. Anal., Proc. Roy. Soc. Edinburgh Sect. A, Proc. R. Soc. London A, J. Mech. Phys. Solids, Multiscale Model. Simul., ESAIM Control Optim. Calc. Var., Calc. Var. Partial Differential Equations, Rocky Mountain J. Math., Contin. Mech. Thermodyn., Appl. Anal.
- Referee for the italian VQR panel ("Valutazione Qualità della Ricerca"; i.e., Evaluation of the Research Quality).

# Italian professorship committees

- 2004 Member of a committee for a position of Associate Professor at the University of Cagliari.
- 2006 Member of a committee for a position of Associate Professor at the University of Salerno.

#### International professorship committees

2016 Member of the hiring committee for two positions of Assistant Professor at TU/e, Eindhoven.

# Organization of international advanced schools

2004 "Summer School in Analysis and Applied Mathematics", Rome. Courses by X. Cabrè, G. Citti, G. Dal Maso, B. Niethammer.

- 2005 "Second Summer School in Analysis and Applied Mathematics", Rome. Courses by P. Cardaliaguet, C. De Lellis, G. Huisken, C. Sinestrari.
- 2006 "Third Summer School in Analysis and Applied Mathematics", Rome. Courses by S. Conti, R.V. Kohn, T. Iwaniec.
- 2007 "Fourth Summer School in Analysis and Applied Mathematics", Rome. Courses by J. M. Ball , S. Müller, V. Šverák.
- 2009 "Fifth Summer School in Analysis and Applied Mathematics", Rome. Courses by G. Alberti, S. Hildebrandt, L. Szekelyhidi.
- 2011 "Sixth Summer School in Analysis and Applied Mathematics", Rome. Courses by A. De Simone, M. Ortiz, A. Quarteroni.
- 2013 "Seventh Summer School in Analysis and Applied Mathematics", Rome. Courses by F. Otto, L. Truskinowsky, G. Savaré.
- 2015 "Eighth Summer School in Analysis and Applied Mathematics", Rome. Courses by M. Cicalese, G. Friesecke, R. James, S. Serfaty.
- 2017 "Ninth Summer School in Analysis and Applied Mathematics", Rome. Courses by J. Carrillo, A. Chambolle, R. Choksi, M. Peletier.

#### Organization of international conferences

2008 "Meeting on Applied Mathematics and Calculus of Variations", Rome.

- 2010 "Second Meeting on Applied Mathematics and Calculus of Variations", Rome.
- 2010 "Nonconvex Evolution Problems, INDAM, Rome.
- 2012 "Third Meeting on Applied Mathematics and Calculus of Variations", Rome.
- 2014 "Women in PDEs and Calculus and Variations", Oxford, UK.
- 2016 "Fourth Meeting on Applied Mathematics and Calculus of Variations", Rome.
- 2017 "Analysis of dislocation models for crystal defects", BIRS workshop, Oaxaca, Mexico.
- 2018 "Variational Methods for the modelling of inelastic solids", Oberwolfach, Germany.

#### Organization of minisymposia at international conferences

- 2008 Minisymposium "Damage and Fracture". "SIAM Conference on Mathematical Aspects of Materials Science", Philadephia, USA.
- 2015 Minisymposium "Analysis and modelling of dislocations and plasticity". ICIAM, Beijing, China.

# MoMA Seminar

2011–present Organizer of the seminar "Modelli Matematici per le Applicazioni" (Mathematical Models for Applications)

(MoMA, www.mat.uniroma1.it/ricerca/seminari/moma).

# Grant holder

- 1999–2006 Faculty research grants.
  - 2003 "La Sapienza" University grant for a visiting professor (Prof. G. Dolzmann).
  - 2006 "La Sapienza" University grant for a visiting professor (Prof. G. Francfort).
  - 2007 GNAMPA grant for the organization of a school.
  - 2009 GNAMPA grant for the organization of a school.
  - 2011 GNAMPA grant for the organization of a school.
  - 2015 "La Sapienza" University grant for the organization of a conference.
  - 2015 University project "Analysis of fluctuations and evolution of systems with singularities by variational methods".
  - 2016 GNAMPA grant for the organization of a school (2.500 euro).
  - 2016 "La Sapienza" University grant for the organization of a Summer School (5.000 euro).

# **Research** interests

Variational problems in Materials Science Mathematical theories for dislocations and plasticity Mathematical theories for fracture and damage Mathematical theories for phase transitions Γ-convergence Variational evolutions Variational problems in spaces of functions with bounded variation Concentration phenomena for problems with critical growth Homogenization and composite materials Relaxed Dirichlet problems

## Visits to italian and international research institutes

Many short visits to major research institutions, among which: Max Planck Institute for Mathematics in the Sciences in Leipzig, University of Bonn, University of Monaco (Germany); Newton Institute in Cambridge, University of Bath, University of Oxford (UK); Centro De Giorgi in Pisa, SISSA in Trieste (Italy); University of Paris VI, University of Paris Nord, École Polytechnique, Paris (France); Courant Institute in New York, Rutgers University, Caltech in Pasadena, WPI in Worcerster, Carnegie-Mellon University in Pittsburgh, IMA in Minneapolis (USA); University of Eindhoven (Netherlands).

# Plenary talks at conferences of national and international societies

- 2008 "SIAM Conference on Mathematical Aspects of Materials Science", Philadelphia, USA.
- 2011 "82nd annual meeting of the GAMM (International Association of Applied Mathematics and Mechanics)", Graz, Austria.
- 2014 National congress of SIMAI (Italian Society for Applied and Industrial Mathematics), Taormina.
- 2015 XX Congress of the Unione Matematica Italiana (short plenary talk), Siena.

# Invited talks at international conferences

More than 70 invited talks at international conferences. The following is a selection of the most recent and relevant conferences. (see Appendix B for a more complete list)

"Workshop on Dynamical Problems in Mathematical Materials Science", Edinburgh (2005)

"Analysis and Computation of Microstructures in Finite Plasticity", Oberwolfach, Germany, (2005)

"Moving boundaries", Lyon, France (2005)

"Variational methods in Material Science", Pisa (2006)

"Analysis and Numerics for Rate-Independent Processes", Oberwolfach, Germany (2007)

"Rate-Independence, Homogenization and Multiscaling", Centro De Giorgi, Pisa (2007)

"Material Theories", Oberwolfach, Germany (2007, 2009, 2013)

"7th GAMM Seminar on Microstructures", Bochum, Germany (2008)

"OxMOS workshop on Fracture", Oxford, UK (2008)

"Atomistic Models of Materials: Mathematical Challenges", Oberwolfach, Germany (2008)

"IUTAM Meeting", Bochum, Germany (2008)

"Asymptotic analysis in the calculus of variations and PDEs", Vancouver, Canada (2009)

"Microstructures in Solids: From Quantum Models to Continua", Oberwolfach, Germany (2010)

"STAMM", Berlin, Germany (2010)

"Young women in PDE" (senior speaker), Bonn, Germany (2012)

"Computational Methods for Multiscale Modeling of Materials Defects", Los Angeles, USA (2012)

"Evolution Problems for Material Defects: Dislocations, Plasticity, and Fracture", SISSA, Trieste (2013)

"Mathematics at the Interface of PDEs, the Calculus of Variations, and Materials Science" (in honor of Robert V. Kohn), IMA, University of Minnesota, MN, USA (2014)

"Length scale in solid mechanics: mathematical and physical aspects" (in honor of Pierre Suquet), IHP, Paris, France (2014)

"Calculus of Variations", Oberwolfach, Germany (2014)

"Innovative numerical approaches for materials and structures in multi-field and multiscale problems" (in honor of Michael Ortiz), Köln, Germany (2014)

"Multiscale Models of Crystal Defects", BIRS, Banff, Canada (2014)

"Analysis and computation of microstructure in finite plasticity" (keynote talk), Bonn, Germany (2015)

"Variational and PDE problems in Applied Mathematics, Pisa, Italy (2016)

"Microstructure Evolution in Materials: Defects, Cracks and Interfaces" Lorentz Center, Leiden, Netherlands (2016)

## Seminars in italian and foreign institutions

Many invited presentations in various italian and foreign institutions, among which: Courant Institute, New York, Rutgers University, Carnegie-Mellon, Pittsburgh (USA), University of Bonn, TUM, Munich, Max Planck Institute Leipzig, Hausdorff center of Bonn, *colloquium* (Germany), University of Oxford, University of Warwick, University of Bath (UK), University of Paris VI, Ecole Polytechnique, Paris (France), SISSA, Trieste, University of Pisa, "De Giorgi" center Pisa, University of Trento, University of Pavia, University of Firenze, GSSI L'Aquila (Italy), TU/e, Eindhoven (Netherlands).

### Dissemination conferences and promotion of Mathematics

2005 First "Giornata delle ragazze" ("Girls Day"), Palazzo Medici, Florence.

- 2009 "Salotti di Numeria", Department of Mathematics, Sapienza, Rome.
- 2011 "Intrecci Matematici", meeting with middle school students, Department of Mathematics, Sapienza, Rome.
- 2012 "Maddmaths! incontra", Libreria Assaggi, Rome.
- 2015 "Matematici al lavoro" ("Mathematicians at Work"), within the exhibition "Numeri. Tutto quello che conta, da zero a infinito", Palazzo delle Esposizioni, Rome.

## List of publications

Peer-reviewed papers

- [1] A. GARRONI: A Wiener estimate for relaxed Dirichlet problems in dimension  $N \ge 2$ , Differential and Integral Equations, Vol. 8 (1995), 849-866.
- [2] G. DAL MASO, A. GARRONI: New results on the asymptotic behaviour of the solutions of Dirichlet problems in perforated domains, Mathematical Models and Methods in Applied Sciences, Vol. 4, N. 3 (1994), 373-407.
- [3] A. BRAIDES, A. GARRONI: Homogenization of nonlinear media with stiff and soft inclusions, Mathematical Models and Methods in Applied Sciences, Vol. 5, N. 4 (1995) 543-564.

- [4] G. BUTTAZZO, G. DAL MASO, A. GARRONI, A. MALUSA: On the relaxed formulation of some shape optimization problems, Advances in Mathematical Sciences and Applications, Vol. 7 (1997), 1-24.
- G. DAL MASO, A. GARRONI: The capacity method for asymptotic Dirichlet problems Asymptotic Analysis, Vol. 15 (1997), 299-324.
- [6] J. CASADO DIAZ, A. GARRONI: Asymptotic behaviour of nonlinear elliptic systems on varying domains, SIAM J. Math. Anal., Vol. 31 (2000), no. 3, 581–624.
- [7] G. DAL MASO, A. GARRONI, I.V. SKRYPNIK: Capacitary method for monotone operators, J. Anal. Math., Vol. 71 (1997), 263-313
- [8] L. AMBROSIO, A. BRAIDES, A. GARRONI: Special functions with bounded variation and with weakly differentiable traces on the jump set, Nonlinear Diff. Equations Appl., Vol. 5 (1998), 219-243.
- [9] J. CASADO DIAZ, A. GARRONI: A non homogeneous extra term for the limit of nonlinear Dirichlet problems in perforated domains, in "Homogenization and applications to material sciences" (Nice, 1995), 81–94, GAKUTO Internat. Ser. Math. Sci. Appl., 9, Gakkotosho, Tokyo, 1995 (peer-reviewed publication).
- [10] A. BRAIDES, A. GARRONI: On the non-local approximation of free-discontinuity problems, Comm. Partial Diff. Equat., Vol. 23 (1998), 817-829.
- [11] A. BRAIDES, G. DAL MASO, A. GARRONI: Variational formulation of softening phenomena in fracture mechanics: the one-dimensional case, Arch. Rational Mech. Anal., Vol. 146 (1999), n.1, 23-58.
- [12] M. FLUCHER, A. GARRONI, S. MÜLLER: Concertation of low energy extremals: Identification of concentration points, Calc. Var. Partial Differential Equations, Vol. 14 (2002), no. 4, 483–516.
- [13] A. GARRONI, B. NIETHAMMER: Correctors and error estimates in the homogenization of a Mullins-Sekerka problem, Ann. Inst. H. Poincaré Anal. Non Linéaire, Vol. 19 (2002), no. 4, 371–393.
- [14] A. GARRONI, V. NESI, M. PONSIGLIONE: Dielectric breakdown: optimal bounds, Proc. Royal Soc. London A, Vol. 457 (2001), 2317-2335.
- [15] A. GARRONI, S. MÜLLER: Concentration phenomena for the volume functional in unbounded domains: Identification of concentration points, J. Funct. Anal. Vol. 199 (2003), no. 2, 386–410.
- [16] M. AMAR, A. GARRONI: Γ-convergence of concentration problems with critical growth, Ann. Sc. Norm. Super. Pisa Cl. Sci. (5) Vol. 2 (2003), no. 1, 151–179.
- [17] A. GARRONI, R.V. KOHN: Some three-dimensional problems related to dielectric breakdown and polycrystal plasticity, Proc. R. Soc. London A Vol. 459 (2003), 2613-2625.
- [18] A. GARRONI, V. NESI: Rigidity and lack of rigidity for solenoidal matrix fields, Proc. R. Soc. London A Vol. 460 (2004), no. 2046, 1789–1806.

- [19] A. BRIANI, A. GARRONI, F. PRINARI: Homogenization of L<sup>∞</sup> functionals, Mathematical Models and Methods in Applied Sciences, Vol. 14 (2004), no. 12, 1761–1784.
- [20] A. GARRONI, S. MÜLLER: Γ-limit of a phase field model of dislocations, SIAM J. Math. Anal., Vol. 36 (2005), no. 6, 1943–1964.
- [21] A. GARRONI, S. MÜLLER: A variational model for dislocations in the line tension limit, Arch. Rational Mech. Anal., Vol. 181 (2006), no. 3, 535-578
- [22] G. FRANCFORT, A. GARRONI: A variational view of brittle damage evolution, Arch. Rational Mech. Anal., Vol. 182 (2006), no. 1, 125–152.
- [23] A. GARRONI, M. PONSIGLIONE, F. PRINARI: From 1-homogeneous supremal functionals to difference quotients: relaxation and Γ-convergence. Calc. Var. Partial Differential Equations, Vol. 27 (2006), no. 4, 397-420
- [24] N. ANSINI, A. GARRONI: Γ-convergence of integral functionals on divergence free fields, ESAIM: COCV, Vol. 13 (2007), no.4, 809–828.
- [25] G. DAL MASO, A. GARRONI: Gradient bounds for minimizers of variational problems related to cohesive zone models in fracture mechanics, Calc. Var. Partial Differential Equations, Vol. 31 (2008), no. 2, 137–145.
- [26] M. FOCARDI, A. GARRONI: A 1D macroscopic phase field model for dislocations and a second order Γ-limit, Multiscale Modeling and Simulation, Vol. 6 (2007), no. 4, 1098–1124.
- [27] A.GARRONI, C. J. LARSEN: Threshold-based quasi-static brittle damage evolution, Arch. Rational Mech. Anal., Vol. 194 (2009), no. 2, 585–609.
- [28] A. GARRONI, G. LEONI, M. PONSIGLIONE Gradient theory for plasticity via homogenization of discrete dislocations, J. Eur. Math. Soc. Vol. 12 (2010), pp. 1231–1266
- [29] S. CACACE, A. GARRONI: A multi-phase transition model for dislocations with interfacial microstructure, Interfaces and Free Boundaries, Vol. 11 (2009), no. 2, 291–316.
- [30] S. CONTI, A. GARRONI, S. MÜLLER: Singular kernels, multiscale decomposition of microstructure, and dislocation models, Arch. Rational Mech. Anal., Vol. 199 (2011), no. 3, 779–819
- [31] L. BERTINI, P. BUTTÀ, A. GARRONI: Boundary effects in the gradient theory of phase transitions, SIAM of Mathematical Analysis, Vol. 44 (2012), no. 2, 926–945.
- [32] L. DE LUCA, A. GARRONI, M. PONSIGLIONE: Γ-convergence analysis of systems of edge dislocations: the self energy regime, Arch. Rational Mech. Anal., Vol. 206 (2012), no. 3, 885–910.
- [33] R. ALICANDRO, L. DE LUCA, A. GARRONI, M. PONSIGLIONE: Metastability and dynamics of discrete topological singularities in two dimensions: a Γ-convergence approach, Arch. Rational Mech. Anal., Vol. 214 (2014), no. 1, pp 269–330.
- [34] A. BRAIDES, B. CASSANO, A. GARRONI, D. SARROCCO: Quasi-static damage evolution and homogenization: a paradigmatic case of non-commutability, Ann. Inst. H. Poincaré Anal. Non Linéaire, published online October 2014.

- [35] S. CONTI, A. GARRONI, A. MASSACCESI: Modeling of dislocations and relaxation of functionals on 1-currents with discrete multiplicity, Calc. Var. Partial Differential Equations, Vol. 54, no. 2 (2015), 1847-1874
- [36] S. CONTI, A. GARRONI, M. ORTIZ: The line-tension approximation as the dilute limit of linear-elastic dislocations, Arch. Rational Mech. Anal., Vol. 218 (2015), no. 2, 699–755.
- [37] S. CONTI, A. GARRONI, S. MÜLLER: Dislocation microstructures and strain-gradient plasticity with one active slip plane, J. Mech. Phys. Solids Vol. 93 (2016), 240-251.
- [38] A. GARRONI, M. PELETIER, L. SCARDIA, P. VAN MEURS: Boundary-layer analysis of a pile-up of walls of edge dislocations at a lock, Mathematical Models and Methods in Applied Sciences, Vol. 26, no. 14 (2016) 2735-2768.
- [39] R. ALICANDRO, L. DE LUCA, A. GARRONI, M. PONSIGLIONE: Dynamics of discrete screw dislocations on glide directions, J. Mech. Phys. Solids, Vol. 92 (2016), 87-104
- [40] S. CONTI, A. GARRONI, S. MÜLLER: Homogenization of vector-valued partition problems and dislocation cell structures in the plane, Boll. Unione Mat. Ital. 10 (2017), no. 1, 3-17.
- [41] A. BRAIDES, A. GARRONI, M. PALOMBARO: Interfacial energies of systems of chiral molecules, Multiscale Model. Simul. Vol. 14 (2016), no. 3, 1037-1062.
- [42] A. BRAIDES, A. GARRONI, S. CONTI: Density of polyhedral partitions, Calc. Var. Partial Differential Equations, Vol. 56 (2017), no. 2, Art. 28, 10 pp.
- [43] R. ALICANDRO, L. DE LUCA, A. GARRONI, M. PONSIGLIONE: Minimising movements for the motion of discrete screw dislocations along glide directions. Calc. Var. Partial Differential Equations Vol. 56 (2017), no. 5, Art. 148, 19 pp.

#### Preprints

[44] P. ARIZA, S. CONTI, A. GARRONI, M. ORTIZ: Variational modeling of dislocations in crystals in the line-tension limit

#### Book chapters

[45] A. GARRONI: Γ-convergence of concentration problems, in "Topics on concentration phenomena and problems with multiple scales", Lect. Notes Unione Mat. Ital., Vol. 2, Springer, Berlin, 2006, 233–266

#### Proceedings and other publications

- [46] G. DAL MASO, A. GARRONI: Capacity theory for non-symmetric elliptic operators, Preprint SISSA (1993).
- [47] L. AMBROSIO, A. BRAIDES, A. GARRONI: Free Discontinuity Problems, Proceedings of the International Conference "Nonlinear Differential Equations" (Kiev, Aug. 21-27, 1995) in "Nonlinear boundary value problems", Vol. 7 (1997), 3-12.

- [48] A. GARRONI, G. PALATUCCI: A singular perturbation result with a fractional norm, in "Variational Problems in Materials Science", Progress in Nonlinear Differential Equations and Their Applications, Vol. 68, Birkhäuser, 2006, 111-126.
- [49] A. GARRONI: Quasi-static evolution of damage, Oberwolfach Reports Vol. 1 (2004), 1576.
- [50] A. GARRONI: Asymptotics of phase-field models of dislocations, Oberwolfach Reports Vol. 2 (2005).
- [51] A. GARRONI: Threshold-based quasi-static brittle damage evolution, Oberwolfach Reports Vol. 4 (2007).
- [52] A. GARRONI: Variational models for plasticity by homogenization of discrete dislocations, Oberwolfach Reports Vol. 4 (2007).

#### **Bibliometric indicators**

- 51 publications, of which 42 on international peer-reviewed journals with a total IF(2014) of 71,39.
- SCOPUS indicators: Total citations 480 (of which 435 non self citations), h-index 11.
- GOOGLE indicators: Total citations 1105, h-index 17.
- MathSciNet indicators: Total citations 444, h-index 11.
- WOS indicators: Total citations 500 (of which 450 non self citations), h-index 12.

Rome, January 10, 2018

Adriana Garroni