

Allegato

**CURRICULUM VITAE**

**INFORMAZIONI PERSONALI**

Nome	<b>Agosti Abramo</b>
Qualifica	Ricercatore RTD-A
Amministrazione	Dipartimento di Matematica, Università di Pavia
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**TITOLI DI STUDIO E PROFESSIONALI ED ESPERIENZE LAVORATIVE**

Titolo di studio (anno di conseguimento; nome e tipo di istituto di istruzione o formazione )	Dottorato di ricerca in Fisica, Astrofisica e Fisica Applicata. Università degli studi di Milano. Febbraio 2013, Ciclo XXIV.
Esperienze professionali (incarichi ricoperti; data; tipo di azienda o settore; principali mansioni o responsabilità)	<b>Posizione corrente:</b>  - Marzo 2021 - in corso: Ricercatore RTD-A, Dipartimento di Matematica, Università degli studi di Pavia.  <b>Posizioni precedenti:</b>  - Febbraio 2020 - Gennaio 2021: Collaboratore scientifico, IRCCS Fondazione Mondino. Advanced Imaging and Radiomics center, dipartimento di Neuroradiology.  - Aprile 2018 - Gennaio 2020: Collaboratore scientifico, Laboratorio MOX Laboratory, Dipartimento di Matematica, Politecnico di Milano.

	<p>- Aprile 2013 - Marzo 2018: Ricercatore Post-Doc, Laboratorio MOX Laboratory, Dipartimento di Matematica, Politecnico di Milano.</p>
Capacità linguistiche	<p>Madrelingua: Italiano. Altra lingua: Inglese – Comprensione C2, Parlato C2, Scritto C2</p>
Capacità nell'uso delle tecnologie	<p>Sviluppo software:</p> <p>- S1 A. Agosti: Dnn muscle segmentation: Release 1.0.1 (version v1.0.1). Zenodo (2021). DOI: <a href="http://doi.org/10.5281/zenodo.4479168">http://doi.org/10.5281/zenodo.4479168</a></p> <p>- S2 F. Santini, J. Wasserthal, A. Agosti: DAFNE. Deep Anatomic Federated NETwork.2021. <a href="https://www.dafne.network/">https://www.dafne.network/</a></p>
<p>Altro (partecipazione a convegni e seminari, pubblicazioni, collaborazione a riviste, ecc., ed ogni altra informazione che il compilante ritiene di dover pubblicare)</p>	<p><b>Talk su invito a conferenze internazionali</b></p> <p>- C1 ECCOMAS Congress 2024 - 9th European Congress on Computational Methods in Applied Sciences and Engineering. Lisboa, Portugal, 3-7 June 2024. MS035B - Computational Models and Methods for Predicting Cancer Progression and Treatment Response. Organizers : Guillermo Lorenzo.</p> <p>- C2 XVII International Conference on Computational Plasticity. Fundamentals and Applications. Barcellona, Spain, 5-7 September 2023. WEa-1702b - IS1702b - Phase-Field Modeling and Engineering Applications in Solid Mechanics. Organizers : Hector Gomez , Thomas J. R. Hughes, Laura De Lorenzis, Guillermo Lorenzo, Ernst Rank, Alessandro Reali.</p> <p>- C3 The 8th European Congress on Computational Methods in Applied Sciences and Engineering ECCOMAS Congress 2022. Oslo, Norway, 5-9 June 2022. MS16: Image-Informed computational models and methods for prediction of cancer growth and treatment response. Organizers : Guillermo Lorenzo, David A. Hormuth II, Chengyue Wu, Ernesto A.B.F. Lima, Michael R. A. Abdelmalik, Alessandro Reali, Thomas J.R. Hughes and Thomas E. Yankeelov.</p> <p>- C4 SIMAI-UMI-PTM joint meeting. Systems: Seeking New Frontiers. Mathematical Modelling for Complex Wroclaw, Poland, 17-20 September, 2018. Organizers : Unione Matematica Italiana, Società Italiana di Matematica Applicata e Industriale, Polish Mathematical Society.</p> <p>- C5 SMACS2018. Special materials and complex systems. Gargnano, Italy, 18-22 June, 2018. Organizers : E. Bonetti, C. Cavaterra (University of Milan), E. Rocca</p>

(University of Pavia), R. Rossi (University of Brescia).

- C6 Numerical Methods for PDES. ME2 conference: Advanced numerical methods: recent developments, analysis and applications. Institut Henri Poincaré, Paris, Fr., 3-7 October 2016.

Organizers : D. Di Pietro (University of Montpellier), A. Ern (Ecole Polytechnique of Paris), L. Formaggia (Politecnico di Milano).

- C7 The XIII biannual congress of SIMAI. MS.60 - Small-scale Solid and Fluid Mechanics in Biology, Part I. Milano, Italy, 13-16 September 2016.

Organizers : D. Ambrosi, P. Zunino (Politecnico di Milano).

- C8 ACOMEN. 6th International Conference on Advanced Computational Methods in Engineering. Ghent, Belgium, 23-28 June 2014.

Organizers : M. Slodicka (University of Ghent).

### **Talk su invito a workshop internazionali e seminari**

- T1 Analysis of a multi-species Cahn-Hilliard-Keller-Segel tumor growth model with chemotaxis and angiogenesis.

Indam Workshop: Cahn-Hilliard and Allen-Cahn Equations in Biomedicine. Politecnico di Milano, 22 February 2024.

Organizers : C. Cavaterra, M. Fornoni, A. Giorgini, E. Rocca, A. Signori.

- T2 Analysis and numerical implementation of a phase field model coupled to viscoelasticity with large deformations. XI Giornata di Studio Politecnico di Milano - Università di Pavia.

Equazioni Differenziali e Calcolo delle Variazioni. Milano, 26 October 2023.

Organizers : M. Conti, A. Giorgini, F. Tomarelli, E. Rocca, G. Schimperna.

- T3 A Cahn-Hilliard phase field model coupled to viscoelasticity at large strains.

Langenbach Seminar, Weierstrass Institute for Applied Analysis and Stochastics. Berlin, Germany. 24 May 2023.

Organizers : A. Glitzky, A. Mielke, M. Thomas, B. Zwicknagl.

- T4 PHase field MEthods in applied sciences. Roma, Italy. 23-27 May 2022.

Organizers : E. Rocca (University of Pavia).

- T5 Radiomics Toolbox. Work#ow and quality management. Neural networks for automatic segmentation. Pavia, Italy, 8-9-10 September 2021.

Organizers : A. Pichiecchio, L. Preda and A. Filippi (University of Pavia).

- T6 Workshop: The Mechanics of Cell Aggregates. Experiments and Models. Politecnico di Torino, Italy. September 3-6, 2019.

Organizers : P. Recho (LiPhy- CNRS Grenoble), D. Ambrosi, A. Grillo, C.

Givero and L. Preziosi (Politecnico di Torino).

- T7 Workshop PHASE2019. Recent advances in Phase-Field modeling: from Engineering to Biology. Pavia, Italy, 8-10 May 2019.  
Organizers : E. Rocca and A. Reali (University of Pavia).

- T8 Oberwolfach Workshop. Surface, Bulk, and Geometric Partial Differential Equations: Interfacial, stochastic, non-local and discrete structures. Oberwolfach, Germany, 20-26 January 2019.  
Organizers : C.M. Elliott (University of Warwick), H. Garcke (University of Regensburg), R. Kornhuber (University of Berlin).

- T9 Seminario di Matematica Applicata at IMATI-CNR and Dipartimento di Matematica di Pavia, Pavia, Italy, 17 April 2018.  
Organizers : E. Rocca (University of Pavia).

- T10 Oberwolfach Workshop. The Mathematics of Mechanobiology and Cell Signaling. Oberwolfach, Germany, February 25-March 03, 2018.  
Organizers : D. Ambrosi (Politecnico di Milano), C. Liu (University Park), M. Roger (University of Dortmund), A. Stevens (University of Munster).

- T11 International Workshop on Modelling of Nonlinear Continua. Castro Urdiales, Cantabria, Spain, 26-30 June 2017.  
Organizers : J. Merodio (Universidad Politecnica de Madrid) and R. Ogden (University of Glasgow).

#### **Organizzazione di conferenze e workshop internazionali**

O1 Lions-Magenes days 2024 - Pavia, 21-22 May 2024.  
Organizers : Abramo Agosti, Carlo Marcati, Massimiliano Martinelli.

#### **Periodi di visita scientifica all'estero**

- V1 May 22-26, 2023. Weierstrass Institute for Applied Analysis and Stochastics. Berlin, Germany. Collaboration with Dr. R. Lasarzik.

- V2 January 27-February 02, 2019. Laboratoire Jacques-Louis Lions, Université Sorbonne, Paris. Collaboration with Prof. B. Perthame and Prof. L. Almeida.

- V3 October 07-11, 2018. University of Regensburg. Collaboration with Prof. H. Garcke and Prof. Michael Hinze.

## **Lista delle pubblicazioni**

### **Articoli in riviste internazionali peer-reviewed e capitoli di monografie**

#### **- Sottomessi o in fase di pubblicazione**

- S1 A. Agosti, P. Colli and M. Frémond: "Large deformations in terms of stretch and rotation and global solution to the quasi-stationary problem" (2023)

arXiv preprint arXiv:2307.02992.

- S2 F. Santini, J. Wasserthal, A. Agosti et al.: "Deep Anatomical Federated Network (Dafne): an open client/server framework for the continuous collaborative improvement of deep-learning-based medical image segmentation" (2023).

arXiv preprint arXiv:2302.06352.

- S3 A. Agosti, R. Lasarzik, E. Rocca: "Energy-variational solutions for viscoelastic fluid models" (2023).

arXiv preprint arXiv:2310.13601.

- S4 A. Agosti and M. Frémond: "Large deformations in terms of stretch and rotation and local solution to the non-stationary problem" (2024)

arXiv preprint arXiv:2403.00759.

#### **- Pubblicati**

- 1 A. Agosti, A. Signori: "Analysis of a multi-species Cahn-Hilliard-Keller-Segel tumor growth model with chemotaxis and angiogenesis."

Journal of Differential Equations, 403, pp. 308-367, 2024.

DOI: 10.1016/j.jde.2024.05.025.

- 2 A. Agosti, R. Bardin, P. Ciarletta, M. Grasselli: "A diffuse interface model of tumour evolution under a finite elastic confinement."

Interfaces and Free Boundaries, 2024.

DOI: 10.4171/IFB/520

- 3 S. Luzzi, A. Agosti: "Radiomics Multifactorial In-Silico Model for Spatial Prediction of Glioblastoma Progression and Recurrence: A Proof-of-Concept".

World Neurosurgery, 183, pp. e677-e686, 2024.

DOI: 10.1016/j.wneu.2024.01.002

- 4 A. Agosti, E. Rocca and L. Scarpa: "Strict separation and numerical approximation for a non-local Cahn-Hilliard equation with single-well potential".

Discrete and Continuous Dynamical Systems Series S 17(1), pp. 462-511, 2024.

DOI: 10.3934/dcdss.2023213

- 5 A. Agosti, P. Colli, H. Garcke, E. Rocca: "A Cahn-Hilliard phase field model coupled to an Allen-Cahn model of viscoelasticity at large strains". *Nonlinearity* 36(12), pp. 6589-6638, 2023.  
DOI: 10.1088/1361-6544/ad0211
- 6 A. Agosti, P. Colli, H. Garcke, E. Rocca: "A Cahn-Hilliard model coupled to viscoelasticity with large deformations." *Communications in Mathematical Sciences* 21(8), pp. 2083-2130, 2023.  
DOI: 10.4310/CMS.2023.v21.n8.a2
- 7 A. Agosti, A. G. Lucifero, S. Luzzi: "An image informed Cahn-Hilliard Keller-Segel multiphase field model for tumor growth with angiogenesis." *Applied Mathematics and Computation* 445, 127834, 2023.  
DOI: 10.1016/j.amc.2023.127834
- 8 G. Lucci, A. Agosti, P. Ciarletta, C. Giverso: "Coupling solid and fluid stresses with brain tumour growth and white matter tract deformations in a neuroimaging-informed model." *Biomechanics and Modeling in Mechanobiology* (1602), 2022.  
DOI: 10.1007/s10237-022-01602-4
- 9 S. Sampaoli, A. Agosti, G. Pozzi, P. Ciarletta: "A toy model of misfolded protein aggregation and neural damage propagation in neurodegenerative diseases." *International Journal of Nonlinear Mechanics*, 144, 104083, 2022.  
DOI: 10.1016/j.ijnonlinmec.2022.104083
- 10 A. Agosti, E. Shaqiri, M. Paoletti et al.: "Deep Learning for Automatic Segmentation of thigh and leg muscles." *Magnetic Resonance Materials in Physics, Biology and Medicine* 35, pp. 467-483, 2022.  
DOI: 10.1007/s10334-021-00967-4
- 11 F. Lizzi, A. Agosti, F. Brero et al.: "Quantification of pulmonary involvement in COVID-19 pneumonia by means of a cascade of two U-nets: training and assessment on multiple datasets using different annotation criteria." *International Journal of Computer Assisted Radiology and Surgery* 17, pp. 229-237, 2022.  
DOI: 10.1007/s11548-021-02501-2
- 12 J. Falco, A. Agosti, I. G. Vetrano et al.: "In Silico Mathematical Modelling for Glioblastoma: a Critical Review and a Patient-Specific Case." *Journal of Clinical Medicine*, 10(10), 2169, 2021.  
DOI: 10.3390/jcm10102169

- 13 A. Perrillat-Mercerot, A. Miranville, A. Agosti, E. Rocca, P. Ciarletta, R. Guillevin: "Partial differential model of lactate neuro-energetics: analytic results and numerical simulations".  
Mathematical Medicine and Biology: A Journal of the IMA 38(2), pp. 178-201, 2021.  
DOI: 10.1093/imammb/dqaa016
  
- 14 F. Acerbi, A. Agosti, J. Falco et al.: "Mechano-Biological Features in a Patient-Specific Computational Model of Glioblastoma."  
In: Seano G. (eds) Brain Tumors. Neuromethods, vol 158. Springer, New York, NY, 2021.  
DOI: 10.1007/978-1-0716-0856-2\_12.
  
- 15 A. Agosti, P. Ciarletta, H. Garcke, M. Hinze: "Learning patient-specific parameters for a diffuse interface glioblastoma model from neuroimaging data."  
Mathematical Methods in the Applied Sciences 43 (15), pp. 8945-8979, 2020.  
DOI: 10.1002/mma.6588.
  
- 16 A. Agosti, S. Marchesi, G. Scita, P. Ciarletta: "Modelling cancer cell budding in-vitro as a self-organised, non-equilibrium growth process."  
Journal of Theoretical Biology 492, 110203, 2020.  
DOI: 10.1016/j.jtbi.2020.110203.
  
- 17 A. Agosti: "Discontinuous Galerkin Finite Element discretization of a degenerate Cahn-Hilliard equation with a single-well potential".  
Calcolo 56(14), pp. 1-47, 2019.  
DOI: 10.1007/s10092-019-0310-y.
  
- 18 D. Riccobelli, A. Agosti, P. Ciarletta: "On the existence of elastic minimizers for initially stressed materials".  
Philosophical Transactions of the Royal Society A, 377(2144), 20180074, 2019.  
DOI: 10.1098/rsta.2018.0074.
  
- 19 A. Agosti, C. Giverso, E. Faggiano, A. Stamm, P. Ciarletta: "A personalized mathematical tool for neuro-oncology: a clinical case study".  
International Journal of Nonlinear Mechanics, 107, pp. 170-181, 2018.  
DOI: 10.1016/j.ijnonlinmec.2018.06.004
  
- 20 A. Agosti, D. Ambrosi, S. Turzi: "Strain energy storage and dissipation rate in active cell mechanics".  
Physical Review E, 97(5), pp. 052410, 2018.  
DOI: 10.1103/PhysRevE.97.052410.
  
- 21 A. Agosti, C. Cattaneo, C. Giverso, D. Ambrosi, P. Ciarletta: "A computational framework for the personalized clinical treatment of

- glioblastoma multiforme".  
ZAMM-Journal of Applied Mathematics and Mechanics/Zeitschrift für Angewandte Mathematik und Mechanik, 98(12), pp. 2307-2327, 2018.  
DOI: 10.1002/zamm.201700294.
- 22 A. Agosti: "Error analysis of a finite element approximation of a degenerate Cahn-Hilliard equation".  
ESAIM Mathematical Modelling and Numerical Analysis, 52(3), pp. 827-867, 2018.  
DOI: 10.1051/m2an/2018018.
- 23 A. Agosti, A. L. Gower, P. Ciarletta: "The constitutive relations of initially stressed incompressible Mooney-Rivlin materials".  
Mechanics Research Communications 93, pp. 4-10, 2017.  
DOI: 10.1016/j.mechrescom.2017.11.002.
- 24 A. Agosti, P. F. Antonietti, P. Ciarletta, M. Grasselli, M. Verani: "A Cahn-Hilliard type equation with application to tumor growth dynamics".  
Mathematical Methods in the Applied Sciences, 40(18), pp. 7598-7626, 2017.  
DOI: 10.1002/mma.4548.
- 25 A. Agosti, B. Giovanardi, L. Formaggia, A. Scotti: "A numerical procedure for geochemical compaction in the presence of discontinuous reactions".  
Advances in Water Resources, 94, pp. 332-344, 2016.  
DOI: 10.1016/j.advwatres.2016.06.001.
- 26 A. Agosti, L. Formaggia, A. Scotti: "Analysis of a model for precipitation and dissolution coupled with a Darcy flow".  
Journal of Mathematical Analysis and Applications, 431(2), pp. 752-781, 2015.  
DOI: 10.1016/j.jmaa.2015.06.003.
- 27 A. Agosti: "Models of Turbulence. Applications to Particulate Mixing induced by traffic flow in Urban Areas."  
Phd Thesis. <http://hdl.handle.net/2434/217169>.  
DOI: 10.13130/agosti-abramo\_phd2013-02-13.
- Articoli in proceedings di conferenze internazionali**
- P1 A. Agosti: "A diffuse interface model for the patient specific evolution of Glioblastoma Multiforme".  
Mathematisches Forschungsinstitut Oberwolfach, Report No. 3/2019, Surface, Bulk, and Geometric Partial Differential Equations: Interfacial, stochastic, non-local and discrete structures.  
DOI: 10.4171/OWR/2019/3
- P2 A. Agosti, L. Formaggia, B. Giovanardi, A. Scotti. "Numerical



	simulation of geochemical compaction with discontinuous reactions". Coupled Problems 2015 - Proceedings of the 6th International Conference on Coupled Problems in Science and Engineering, pp. 300- 311, 2015.
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Luogo e data: Pavia, 10/06/2024