

# Alessandro Reali – Publications

[Last update: May 5<sup>th</sup>, 2023]

170 papers in peer-reviewed international journals

3 papers submitted to peer-reviewed international journals

2 invited papers on international scientific magazines

16 book chapters

40 papers in international conference proceedings

2 papers in national conference proceedings

3 theses

1 research report (unpublished elsewhere)

*Number of total citations:*

- **13,896** (according to the *Google Scholar* database)

- **9,358** (according to the *Scopus* database)

*Number of citations for the 5 most cited papers:*

- **1,289, 1,214, 825, 655, 493** (according to the *Google Scholar* database)

- **859, 774, 551, 409, 313** (according to the *Scopus* database)

*h-index:*

- **54** (according to the *Google Scholar* database)

- **47** (according to the *Scopus* database)

## Papers in peer-reviewed international journals:

1. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali. A Stability Study of some Mixed Finite Elements for Large Deformation Elasticity Problems. *Computer Methods in Applied Mechanics and Engineering*, vol. 194 (2005), pp. 1075–1092.
2. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali. An Analysis of some Mixed-Enhanced Finite Elements for Plane Linear Elasticity. *Computer Methods in Applied Mechanics and Engineering*, vol. 194 (2005), pp. 2947–2968.
3. A. Reali. An Isogeometric Analysis Approach for the Study of Structural Vibrations. *Journal of Earthquake Engineering*, vol. 10, s.i. 1 (2006), pp. 1–30.
4. J.A. Cottrell, A. Reali, Y. Bazilevs, T.J.R. Hughes. Isogeometric Analysis of Structural Vibrations. *Computer Methods in Applied Mechanics and Engineering*, vol. 195 (2006), pp. 5257–5296.
5. F. Auricchio, A. Reali. A Phenomenological One-dimensional Model Describing Stress-induced Solid Phase Transformation with Permanent Inelasticity. *Mechanics of Advanced Materials and Structures*, vol. 14 (2007), pp. 43–55.
6. F. Auricchio, A. Reali, U. Stefanelli. A Three-dimensional Model Describing Stress-induced Solid Phase Transformation with Permanent Inelasticity. *International Journal of Plasticity*, vol. 23 (2007), pp. 207–226.
7. J.A. Cottrell, T.J.R. Hughes, A. Reali. Studies of Refinement and Continuity in Isogeometric Structural Analysis. *Computer Methods in Applied Mechanics and Engineering*, vol. 196 (2007), pp. 4160–4183.
8. F. Auricchio, L. Beirão da Veiga, A. Buffa, C. Lovadina, A. Reali, G. Sangalli. A Fully Locking-free Isogeometric Approach for Plane Linear Elasticity Problems: a Stream Function Formulation. *Computer Methods in Applied Mechanics and Engineering*, vol. 197 (2007), pp. 160–172.
9. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, G. Scovazzi. Variational Multiscale Residual-based Turbulence Modeling for Large Eddy Simulation of Incompressible Flows. *Computer Methods in Applied Mechanics and Engineering*, vol. 197 (2007), pp. 173–201.

10. F. Auricchio, A. Reali. Shape Memory Alloys: material modeling and device finite element simulations. *Materials Science Forum*, vol. 583 (2008), pp. 257–275.
11. F. Auricchio, P. Carotenuto, A. Reali. On the geometrically exact beam model: a consistent, effective and simple derivation from three-dimensional finite elasticity. *International Journal of Solids and Structures*, vol. 45 (2008), pp. 4766–4781.
12. T.J.R. Hughes, A. Reali, G. Sangalli. Duality and Unified Analysis of Discrete Approximations in Structural Dynamics and Wave Propagation: Comparison of  $p$ -method Finite Elements with  $k$ -method NURBS. *Computer Methods in Applied Mechanics and Engineering*, vol. 197 (2008), pp. 4104–4124.
13. F. Auricchio, A. Reali, U. Stefanelli. A macroscopic 1D model for shape memory alloys including asymmetric behaviors and transformation-dependent elastic properties. *Computer Methods in Applied Mechanics and Engineering*, vol. 198 (2009), pp. 1631–1637.
14. F. Auricchio, A. Coda, A. Reali, M. Urbano. SMA numerical modeling versus experimental results: parameter identification and model prediction capabilities. *Journal of Materials Engineering and Performance*, vol. 18 (2009), pp. 649–654.
15. T.J.R. Hughes, A. Reali, G. Sangalli. Efficient Quadrature for NURBS-based Isogeometric Analysis. *Computer Methods in Applied Mechanics and Engineering*, vol. 199 (2010), pp. 301–313.
16. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali. The importance of the exact satisfaction of the incompressibility constraint in nonlinear elasticity: mixed FEMs versus NURBS-based approximations. *Computer Methods in Applied Mechanics and Engineering*, vol. 199 (2010), pp. 314–323.
17. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, S. Sohrabpour. A 3-D phenomenological model for shape memory alloys under multiaxial loadings. *International Journal of Plasticity*, vol. 26 (2010), pp. 976–991.
18. F. Auricchio, A. Reali, A. Tardugno. Shape-memory alloys: effective 3D modelling, computational aspects and design of devices. *International Journal of Computational Materials Science and Surface Engineering*, vol. 3 (2010), pp. 199–223.
19. F. Auricchio, L. Beirão da Veiga, T.J.R. Hughes, A. Reali, G. Sangalli. Isogeometric Collocation Methods. *Mathematical Models and Methods in Applied Sciences*, vol. 20 (2010), pp. 2075–2107.
20. F. Auricchio, M. Conti, S. Morganti, A. Reali. Shape Memory Alloys: from constitutive modeling to finite element analysis of stent deployment. *CMES – Computer Modeling in Engineering & Sciences*, vol. 57 (2010), pp. 225–243.
21. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, S. Sohrabpour. A 3D finite strain phenomenological constitutive model for shape memory alloys considering martensite reorientation. *Continuum Mechanics and Thermodynamics*, vol. 22 (2010), pp. 345–362.
22. D. Asprone, F. Auricchio, G. Manfredi, A. Prota, A. Reali, G. Sangalli. Particle methods for a 1D elastic model problem: error analysis and development of a second-order accurate formulation. *CMES – Computer Modeling in Engineering & Sciences*, vol. 62 (2010), pp. 1–22.
23. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali. On the robustness and efficiency of integration algorithms for a 3D finite strain phenomenological SMA constitutive model. *International Journal for Numerical Methods in Engineering*, vol. 85 (2011), pp. 107–134.
24. D. Asprone, F. Auricchio, A. Reali. Novel Finite Particle Formulations Based on Projection Methodologies. *International Journal for Numerical Methods in Fluids*, vol. 65 (2011), pp. 1376–1388.
25. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli. A three-dimensional phenomenological model for Magnetic Shape Memory Alloys. *GAMM-Mitteilungen*, vol. 34 (2011), pp. 90–96.
26. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali. An improved, fully symmetric, finite strain phenomenological constitutive model for shape memory alloys. *Finite Elements in Analysis and Design*, vol. 47 (2011), pp. 166–174.
27. F. Auricchio, S. Morganti, A. Reali, M. Urbano. Theoretical and experimental study of the shape memory effect of beams in bending conditions. *Journal of Materials Engineering and Performance*, vol. 20 (2011), pp. 712–718.
28. C. de Falco, A. Reali, R. Vázquez. GeoPDEs: a research tool for IsoGeometric Analysis of PDEs. *Advances in Engineering Software*, vol. 42 (2011), pp. 1020–1034.
29. L. Beirão da Veiga, C. Lovadina, A. Reali. Avoiding shear locking for the Timoshenko beam problem via isogeometric collocation methods. *Computer Methods in Applied Mechanics and Engineering*, vol. 241–244 (2012), pp. 38–51.
30. F. Auricchio, M. Conti, M. Ferraro, A. Reali. Evaluation of carotid stent scaffolding through patient-specific finite element analysis. *International Journal for Numerical Methods in Biomedical Engineering*, vol. 28 (2012), pp. 1043–1055.

31. F. Auricchio, L. Beirão da Veiga, T.J.R. Hughes, A. Reali, G. Sangalli. Isogeometric collocation for elastostatics and explicit dynamics. *Computer Methods in Applied Mechanics and Engineering*, vol. 249-252 (2012), pp. 2–14.
32. F. Auricchio, F. Calabrò, T.J.R. Hughes, A. Reali, G. Sangalli. A Simple Algorithm for Obtaining Nearly Optimal Quadrature Rules for NURBS-based Isogeometric Analysis. *Computer Methods in Applied Mechanics and Engineering*, vol. 249-252 (2012), pp. 15–27.
33. F. Auricchio, M. Conti, S. Marconi, A. Reali, J. Tolenaar, S. Trimarchi. Patient-specific aortic endografting simulation: from diagnosis to prediction. *Computers in Biology and Medicine*, vol. 43 (2013), pp. 386–394.
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35. F. Auricchio, L. Beirão da Veiga, J. Kiendl, C. Lovadina, A. Reali. Locking-free isogeometric collocation methods for spatial Timoshenko rods. *Computer Methods in Applied Mechanics and Engineering*, vol. 263 (2013), pp. 113–126.
36. D. Asprone, F. Auricchio, C. Menna, S. Morganti, A. Prota, A. Reali. Structural finite element analysis of the buckling behavior of honeycomb structures. *Composite Structures*, vol. 105 (2013), pp. 240–255.
37. D. Schillinger, J.A. Evans, A. Reali, M.A. Scott, T.J.R. Hughes. Isogeometric Collocation: Cost Comparison with Galerkin Methods and Extension to Adaptive Hierarchical NURBS Discretizations. *Computer Methods in Applied Mechanics and Engineering*, vol. 267 (2013), pp. 170–232.
38. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali, R.L. Taylor, P. Wriggers. Approximation of incompressible large deformation elastic problems: some unresolved issues. *Computational Mechanics*, vol. 52 (2013), pp. 1153–1167.
39. D. Asprone, F. Auricchio, A. Reali. Modified Finite Particle Method: applications to elasticity and plasticity problems. *International Journal of Computational Methods*, vol. 11 (2014), pp. 1350050:1–23.
40. F. Auricchio, M. Conti, A. Ferrara, S. Morganti, A. Reali. Patient-specific simulation of a stentless aortic valve implant: the impact of fibers on leaflet performance. *Computer Methods in Biomechanics and Biomedical Engineering*, vol. 17 (2014), pp. 277–285.
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42. T.J.R. Hughes, J.A. Evans, A. Reali. Finite Element and NURBS Approximations of Eigenvalue, Boundary-value, and Initial-value Problems. *Computer Methods in Applied Mechanics and Engineering*, vol. 272 (2014), pp. 290–320.
43. F. Auricchio, M. Conti, S. Morganti, A. Reali. Simulation of transcatheter aortic valve implantation: a patient-specific finite element approach. *Computer Methods in Biomechanics and Biomedical Engineering*, vol. 17 (2014), pp. 1347–1357.
44. J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, R.J. Alves de Sousa. On the Assumed Natural Strain method to alleviate locking in solid-shell NURBS-based finite elements. *Computational Mechanics*, vol. 53 (2014), pp. 1341–1353.
45. D. Asprone, F. Auricchio, A. Montanino, A. Reali. A Modified Finite Particle Method: multi-dimensional elastostatics and dynamics. *International Journal for Numerical Methods in Engineering*, vol. 99 (2014), pp. 1–25.
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47. F. Auricchio, M. Conti, A. Lefieux, S. Morganti, A. Reali, F. Sardanelli, F. Secchi, S. Trimarchi, A. Veneziani. Patient-specific analysis of post-operative aortic hemodynamics: a focus on Thoracic Endovascular Repair (TEVAR). *Computational Mechanics*, vol. 54 (2014), pp. 943–953.
48. G.H.V. van Bogerijen, F. Auricchio, M. Conti, A. Lefieux, A. Reali, A. Veneziani, J.L. Tolenaar, F.L. Moll, V. Rampoldi, S. Trimarchi. Aortic hemodynamics after thoracic endovascular aortic repair, with particular attention to the bird-beak configuration. *Journal of Endovascular Therapy*, vol. 21 (2014), pp. 791–802.
49. F. Auricchio, D. Boffi, L. Gastaldi, A. Lefieux, A. Reali. A study on unfitted 1D finite element methods. *Computers and Mathematics with Applications*, vol. 68 (2014), pp. 2080–2102.
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51. J. Kiendl, F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali. Isogeometric collocation methods for the Reissner-Mindlin plate problem. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 489–507.

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53. A. Reali, H. Gomez. An isogeometric collocation approach for Bernoulli-Euler beams and Kirchhoff plates. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 623–636.
54. J.F. Caseiro, R.A.F. Valente, A. Reali, J. Kiendl, F. Auricchio, R.J. Alves de Sousa. Assumed Natural Strain NURBS-based solid-shell element for the analysis of large deformation elasto-plastic thin-shell structures. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 861–880.
55. J. Kiendl, F. Auricchio, T.J.R. Hughes, A. Reali. Single-variable formulations and isogeometric discretizations for shear deformable beams. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 988–1004.
56. S. Kollmannsberger, A. Özcan, J. Baiges, M. Ruess, E. Rank, A. Reali. Parameter-free, weak imposition of Dirichlet boundary conditions and coupling of trimmed and non-conforming patches. *International Journal for Numerical Methods in Engineering*, vol. 101 (2015), pp. 670–699.
57. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli. A phenomenological model for the magneto-mechanical response of single-crystal Magnetic Shape Memory Alloys. *European Journal of Mechanics – A/Solids*, vol. 52 (2015), pp. 1–11.
58. L. Beirão da Veiga, T.J.R. Hughes, J. Kiendl, C. Lovadina, J. Niiranen, A. Reali, H. Speleers. A locking-free model for Reissner-Mindlin plates: Analysis and isogeometric implementation via NURBS and triangular NURPS. *Mathematical Models and Methods in Applied Sciences*, vol. 25 (2015), pp. 1519–1551.
59. J. Kiendl, M.-C. Hsu, M.C.H. Wu, A. Reali. Isogeometric Kirchhoff-Love shell formulations for general hyperelastic materials. *Computer Methods in Applied Mechanics and Engineering*, vol. 291 (2015), pp. 280–303.
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61. M.-C. Hsu, D. Kamensky, F. Xu, J. Kiendl, C. Wang, M.C.H. Wu, J. Mineroff, A. Reali, Y. Bazilevs, M.S. Sacks. Dynamic and fluid-structure interaction simulations of bioprosthetic heart valves using parametric design with T-splines and Fung-type material models. *Computational Mechanics*, vol. 55 (2015), pp. 1211–1225.
62. M. Ferraro, F. Auricchio, E. Boatti, G. Scalet, M. Conti, S. Morganti, A. Reali. An efficient finite element framework to assess flexibility performances of SMA self-expandable carotid artery stents. *Journal of Functional Biomaterials*, vol. 6 (2015), pp. 585–597.
63. F. Auricchio, F. Brezzi, A. Lefieux, A. Reali. An “immersed” finite element method based on a locally anisotropic remeshing for the incompressible Stokes problem. *Computer Methods in Applied Mechanics and Engineering*, vol. 294 (2015), pp. 428–448.
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65. F. Auricchio, M. Conti, M. Ferraro, S. Morganti, A. Reali, R.L. Taylor. Innovative and efficient stent flexibility simulations based on isogeometric analysis. *Computer Methods in Applied Mechanics and Engineering*, vol. 295 (2015), pp. 347–361.
66. D. Asprone, F. Auricchio, A. Montanino, A. Reali. Review of the modified finite particle method and applications to incompressible solids. *International Journal of Multiphysics*, vol. 9 (2015), pp. 235–248.
67. F. Auricchio, L. Beirão da Veiga, J. Kiendl, C. Lovadina, A. Reali. Isogeometric collocation mixed methods for rods. *Discrete and Continuous Dynamical Systems – Series S*, vol. 9 (2016), pp. 33–42.
68. F. Auricchio, E. Boatti, A. Reali, U. Stefanelli. Gradient structures for the thermodynamics of shape-memory materials. *Computer Methods in Applied Mechanics and Engineering*, vol. 299 (2016), pp. 440–469.
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