Alessandro Reali – Publications

[Last update: September 26$^{\text{th}}$, 2018]

97 papers in peer-reviewed international journals

4 papers submitted to peer-reviewed international journals

2 invited papers on international scientific magazines

13 book chapters

34 papers in international conference proceedings

2 papers in national conference proceedings

3 theses

1 research report (unpublished elsewhere)

Number of total citations:

- **7,173** (according to the *Google Scholar* database)
- **4,565** (according to the *Scopus* database)
- **4,026** (according to the *ISI Web of Knowledge* database)

Number of citations for the 5 most cited papers:

- **865, 774, 587, 453, 330** (according to the *Google Scholar* database)
- **558, 461, 399, 286, 205** (according to the *Scopus* database)
- **504, 423, 355, 256, 189** (according to the *ISI Web of Knowledge* database)

h-index:

- **36** (according to the *Google Scholar* database)
- **31** (according to the *Scopus* database)
- **28** (according to the *ISI Web of Knowledge* database)

Honors:

- **Author of 14 "Highly Cited Papers"** in the period 2007–2017 according to Clarivate/ISI Thomson-Reuters (i.e., papers that received enough citations to place them in the top 1% of its academic field based on a highly cited threshold for the field and publication year; update: February 2018).
- **Author of the 5th most cited paper ever** among those published by the prestigious scientific journal *Mathematical Models and Methods in Applied Sciences* (update: December 2017).
- **Author of 3 of the 20 most cited papers** among those published in the period 2012–2017 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering*.
- **Author of 2 of the 20 most cited papers** among those published in the period 2011–2016 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering*.
- **Author of the 3rd most cited paper** among those published in the period 2010–2015 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering*.
- **Author of the 5th most cited paper** among those published in the period 2010–2015 by the prestigious scientific journal *International Journal of Plasticity*.
- **Author of the 3rd most cited paper** among those published in the period 2009–2014 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering* .
- **Author of the 8th most cited paper** among those published in the period 2009–2014 by the prestigious scientific journal *International Journal of Plasticity*.
- **Author of the 6th and 12th most cited paper** among those published in the period 2008–2013 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering*.
- **Author of 2 of the 3 most cited papers (and of 4 of the 15 most cited papers)** among those published in the period 2007–2012 by the prestigious scientific journal *Computer Methods in Applied Mechanics and Engineering*.
- **Author of the 6th most cited paper** among those published in the period 2007–2012 by the prestigious scientific journal *International Journal of Plasticity*.

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. SPH 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.

34. F. Auricchio, M. Conti, A. Ferrara, S. Morganti, A. Reali. Patient-specific finite element analysis of carotid artery stenting: a focus on vessel modeling. *International Journal for Numerical Methods in Biomedical Engineering*, vol. 29 (2013), pp. 645–664.

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.

41. H. Gomez, A. Reali, G. Sangalli. Accurate, efficient, and (iso)geometrically flexible collocation methods for phase-field models. *Journal for Computational Physics*, vol. 262 (2014), pp. 153–171.

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 elasto-statics and dynamics. *International Journal for Numerical Methods in Engineering*, vol. 99 (2014), pp. 1–25.

46. S. Morganti, M. Conti, M. Aiello, A. Valentini, A. Mazzola, A. Reali, F. Auricchio. Simulation of transcatheter aortic valve implantation through patient-specific finite element analysis: two clinical cases. *Journal of Biomechanics*, vol. 47 (2014), pp. 2547–2555.

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.

50. L. De Lorenzis, J.A. Evans, T.J.R. Hughes, A. Reali. Isogeometric Collocation: Neumann boundary conditions and contact. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 21–54.

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.

52. S. Morganti, F. Auricchio, D.J. Benson, F.I. Gambarin, S. Hartmann, T.J.R. Hughes, A. Reali. Patient-specific isogeometric structural analysis of aortic valve closure. *Computer Methods in Applied Mechanics and Engineering*, vol. 284 (2015), pp. 508–520.

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.

60. F. Auricchio, D. Boffi, L. Gastaldi, A. Lefieux, A. Reali. On a fictitious domain method with distributed Lagrange multiplier for interface problems. *Applied Numerical Mathematics*, vol. 95 (2015), pp. 36–50.

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.

64. C. Manni, A. Reali, H. Speleers. Isogeometric collocation methods with generalized B-splines. *Computers and Mathematics with Applications*, vol. 70 (2015), pp. 1659–1675.

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.

69. H. Casquero, L. Liu, Y. Zhang, A. Reali, H. Gomez. Isogeometric collocation using analysis-suitable T-splines of arbitrary degree. *Computer Methods in Applied Mechanics and Engineering*, vol. 301 (2016), pp. 164–186.

70. F. Auricchio, A. Lefieux, A. Reali, A. Veneziani. A locally anisotropic fluid-structure interaction remeshing strategy for thin structures with application to a hinged rigid leaflet. *International Journal for Numerical Methods in Engineering*, vol. 107 (2016), pp. 155–180.

71. S. Morganti, N. Brambilla, A.S. Petronio, A. Reali, F. Bedogni, F. Auricchio. Prediction of patient-specific post-operative outcomes of TAVI procedure: The impact of the positioning strategy on valve performance. *Journal of Biomechanics*, vol. 49 (2016), pp. 2513–2519.

72. D. Gallo, A. Lefieux, S. Morganti, A. Veneziani, A. Reali, F. Auricchio, M. Conti, U. Morbiducci. A Patient-Specific Follow Up Study of the Impact of Thoracic Endovascular Repair (TEVAR) on Aortic Anatomy and on Post-Operative Hemodynamics. *Computers & Fluids*, vol. 141 (2016), pp. 54–61.

73. M. Conti, C. Long, M. Marconi, R. Berchiolli, Y. Bazilevs, A. Reali. Carotid artery hemodynamics before and after stenting: A patient specific CFD study. *Computers & Fluids*, vol. 141 (2016), pp. 62–74.

74. J. Kiendl, M. Ambati, L. De Lorenzis, H. Gomez, A. Reali. Phase-field description of brittle fracture in plates and shells. *Computer Methods in Applied Mechanics and Engineering*, vol. 312 (2016), pp. 374–394.

75. D. D'Angella, N. Zander, S. Kollmannsberger, F. Frischmann, E. Rank, A. Schröder, A. Reali. Multi-level *hp*-adaptivity and explicit error estimation. *Advanced Modeling and Simulation in Engineering Sciences*, vol. 3 (2016), pp. 33:1–18.

76. H. Casquero, L. Liu, Y. Zhang, A. Reali, J. Kiendl, H. Gomez. Arbitrary-degree T-splines for isogeometric analysis of fully nonlinear Kirchhoff-Love shells. *Computer-Aided Design*, vol. 82 (2017), pp. 140–153.

77. S. Perotto, A. Reali, P. Rusconi, A. Veneziani. HIGAMod: A Hierarchical IsoGeometric Approach for MODel reduction in curved pipes. *Computers & Fluids*, vol. 142 (2017), pp. 21–29.

78. M. Conti, M. Marconi, G. Campanile, A. Reali, D. Adami, R. Berchiolli, F. Auricchio, Patient-specific finite element analysis of popliteal stenting. *Meccanica*, vol. 52 (2017), pp. 633–644.

79. J. Niiranen, J. Kiendl, A. H. Niemi, A. Reali. Isogeometric analysis for sixth-order boundary value problems of gradient-elastic Kirchhoff plates. *Computer Methods in Applied Mechanics and Engineering*, vol. 316 (2017), pp. 328–348.

80. T. Hoang, C.V. Verhoosel, F. Auricchio, E.H. van Brummelen, A. Reali. Mixed Isogeometric Finite Cell Methods for the Stokes Problem. *Computer Methods in Applied Mechanics and Engineering*, vol. 316 (2017), pp. 400–423.

81. L. Heltai, J. Kiendl, A. DeSimone, A. Reali. A natural framework for isogeometric fluid-structure interaction based on BEM-shell coupling. *Computer Methods in Applied Mechanics and Engineering*, vol. 316 (2017), pp. 522–546.

82. G. Balduzzi, S. Morganti, F. Auricchio, A. Reali. Non-prismatic Timoshenko-like beam model: Numerical solution via isogeometric collocation. *Computers and Mathematics with Applications*, vol. 74 (2017), pp. 1531–1541.

83. O. Bas, D. D'Angella, J.G. Baldwin, N.J. Castro, F.M. Wunner, N.T. Saidy, S. Kollmannsberger, A. Reali, E. Rank, E.M. De-Juan-Pardo, D.W. Hutmacher. Integrated Design, Material, and Fabrication Platform for Engineering Biomechanically and Biologically Functional Soft Tissues. *ACS Applied Materials & Interfaces*, vol. 9 (2017), pp. 29430–29437.

84. D. D'Angella, S. Kollmannsberger, E. Rank, A. Reali. Multi-level Bézier extraction for hierarchical local refinement of Isogeometric Analysis. *Computer Methods in Applied Mechanics and Engineering*, vol. 328 (2018), pp. 147–174.

85. J.-E. Dufour, P. Antolin, G. Sangalli, F. Auricchio, A. Reali. A cost-effective isogeometric approach for composite plates based on a stress recovery procedure. *Composites Part B: Engineering*, vol. 138 (2018), pp. 12–18.

86. A. Montanino, D. Asprone, F. Auricchio, A. Reali. Modified Finite Particle Methods for Stokes problems. *Computational Particle Mechanics*, vol. 5 (2018), pp. 141–160.

87. J. Kiendl, F. Auricchio, A. Reali. A displacement-free formulation for the Timoshenko beam problem and a corresponding isogeometric collocation approach. *Meccanica*, vol. 53 (2018), pp. 1403–1413.

88. F. Xu, S. Morganti, R. Zakerzadeh, D. Kamensky, F. Auricchio, A. Reali, T.J.R. Hughes, M.S. Sacks, M.-C. Hsu. A framework for designing patient-specific bioprosthetic heart valves using immersogeometric fluid-structure interaction analysis. *International Journal for Numerical Methods in Biomedical Engineering*, vol. 34 (2018), pp. e2938.

89. S. Morganti, C. Callari, F. Auricchio, A. Reali. Mixed isogeometric collocation methods for the simulation of poromechanics problems in 1D. *Meccanica*, vol. 53 (2018), pp. 1441–1454.

90. T. Hoang, C.V. Verhoosel, F. Auricchio, E.H. van Brummelen, A. Reali. Skeleton-stabilized IsoGeometric Analysis: High-regularity Interior-Penalty methods for incompressible viscous flow problems. *Computer Methods in Applied Mechanics and Engineering*, vol. 337 (2018), pp. 324–351.

91. F. Auricchio, M. Ferretti, A. Lefieux, M. Musci, A. Reali, S. Trimarchi, A. Veneziani. Parallelizing a finite element solver in computational hemodynamics: a black box approach. *International Journal of High Performance Computing Applications*, vol. 32 (2018), pp. 351–362.

92. J.A. Evans, R.R. Hiemstra, T.J.R. Hughes, A. Reali. Explicit Higher-Order Accurate Isogeometric Collocation Methods for Structural Dynamics. *Computer Methods in Applied Mechanics and Engineering*, vol. 338 (2018), pp. 208–240.

93. S.F. Hosseini, A. Hashemian, A. Reali. On the Application of Curve Reparameterization in Isogeometric Vibration Analysis of Free-from Curved Beams. *Computers & Structures*, vol. 209 (2018), pp. 117–129.

94. R.M. Romarowski, E. Faggiano, M. Conti, A. Reali, S. Morganti, F. Auricchio. A novel computational framework to predict patient-specific hemodynamics after TEVAR: integration of structural and fluid-dynamics analysis by image elaboration. Published online on *Computers & Fluids*, doi:10.1016/j.compfluid.2018.06.002

95. N. Campomenosi, M.L. Mazzucchelli, B. Mihailova, M. Scambelluri, R.J. Angel, F. Nestola, A. Reali, M. Alvaro. How geometry and anisotropy affect residual strain in host-inclusion system: Coupling experimental and numerical approaches. Published online on *American Mineralogist*, doi:10.2138/am-2018-6700CCBY

96. C. Garoni, H. Speleers, S.-E. Ekström, A. Reali, S. Serra-Capizzano, T.J. R. Hughes. Symbol-based analysis of finite element and isogeometric B-spline discretizations of eigenvalue problems: Exposition and review. Published online on *Archives of Computational Methods in Engineering*, doi:10.1007/s11831-018-9295-y

97. T. Hoang, C.V. Verhoosel, C.-Z. Qin, F. Auricchio, A. Reali, E.H. van Brummelen. Skeleton-stabilized Immerso-Geometric Analysis for incompressible viscous flow problems. Accepted for publication on *Computer Methods in Applied Mechanics and Engineering*.

Papers submitted to peer-reviewed international journals:

98. A. Montanino, D. Asprone, A. Reali, F. Auricchio. A Least Square Residual version of the Modified Finite Particle Method to solve saddle point problems: application to stationary Stokes and Navier-Stokes Equations.

99. G. Lorenzo, T.J.R. Hughes, P. Dominguez-Frojan, A. Reali, H. Gomez. Prostate enlargement due to benign prostatic hyperplasia mechanically impedes prostate cancer growth.

100. T. Horger, A. Reali, B. Wohlmuth, L. Wunderlich. A hybrid isogeometric approach on multi-patches with applications to Kirchhoff plates and eigenvalue problems.

101. M. Coda, R.L. Taylor, M. Conti, M. Ferraro, S. Morganti, S. Trimarchi, F. Auricchio, A. Reali. A computational framework for the simulation of patient-specific toracic aortic aneurysms: From DICOM images to structural isogeometric analysis.

Invited papers on international scientific magazines:

102. F. Auricchio, M. Conti, S. Morganti, A. Reali. Patient-specific Simulations in Cardiovascular Biomechanics: from Diagnosis to Prediction, *ECCOMAS Newsletter*, June issue (2012), pp. 7–12.

103. A. Reali. Isogeometric Analysis: An Innovative Paradigm for Computational Mechanics, *IACM Expressions*, n. 36 (2015), pp. 10–13.

Book chapters:

104. J.A. Cottrell, A. Reali, Y. Bazilevs, T.J.R. Hughes. *Computational Geometry and the Analysis of Solids and Structures*, in "Computational Mechanics. Solids, Structures and Coupled Problems", editors: C.A.M. Soares, J.A.C. Martins, H.C. Rodrigues, J.A.C. Ambrósio. Springer (2006), 21–40.

105. T.J.R. Hughes, J.A. Cottrell, Y. Bazilevs, A. Reali. *Computational Geometry as a Basis for Computational Structures Technology: a Look into the Future*, in "Innovation in Computational Structures Technology", editors: B.H.V. Topping, G. Montero, R. Montenegro. Saxe-Coburg Publications (2006), 1–22.

106. F. Auricchio, A. Reali, U. Stefanelli. *A Phenomenological 3D Model Describing Stress-induced Solid Phase Transformations with Permanent Inelasticity*, in "Topics on Mathematics for Smart Systems", editors: B. Miara, G. Stavroulakis, V. Valente. World Scientific (2007), 1–14.

107. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, G. Scovazzi. *The Variational Multiscale Theory for Turbulent Flow*, in "Flow Simulation by the Finite Element Method - II", editors: K. Kashiyama, T. Nomura, S. Fujima. Springer Japan (2008, in Japanese).

108. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali. *Stability of Some Finite Element Methods for Finite Elasticity Problems*, in "Mixed Finite Element Technologies", editors: C. Carstensen, P. Wriggers. Springer (2009), 179–206.

109. F. Auricchio, M. Conti, S. Morganti, A. Reali. *Shape Memory Alloys: Material Modeling and Device Finite Element Simulations*, in "IUTAM Symposium on Multiscale Modelling of Fatigue, Damage and Fracture in Smart Materials Systems", editors: M. Kuna, A. Ricoeur. Springer (2011), 33–42.

110. A. Reali, T.J.R. Hughes. *An Introduction to Isogeometric Collocation Methods*, in "Isogeometric Methods for Numerical Simulation", editors: G. Beer, S.P. Bordas. Springer (2015), pp. 173–204.

111. F. Auricchio, F. Brezzi, A. Lefieux, A. Reali. *Numerical studies on the stability of mixed finite elements over anisotropic meshes arising from immersed boundary Stokes problems*, in "Advances in Computational Fluid-Structure Interaction and Flow Simulation", editors: Y. Bazilevs, K. Takizawa. Springer-Birkhäuser (2016), pp. 319–330.

112. A. Lefieux, F. Auricchio, M. Conti, S. Morganti, A. Reali, S. Trimarchi, A. Veneziani. *Computational study of aortic hemodynamics: from simplified to patient-specific geometries*, in "Advances in Computational Fluid-Structure Interaction and Flow Simulation", editors: Y. Bazilevs, K. Takizawa. Springer-Birkhäuser (2016), pp. 397–407.

113. F. Auricchio, A. Lefieux, A. Reali. *On the Use of Anisotropic Triangles with Mixed Finite Elements: Application to an "Immersed" Approach for Incompressible Flow Problems*, in "Advanced finite element technologies", editors: J. Schröder, P. Wriggers. Springer (2016), pp. 195–236.

114. S. Morganti, M. Conti, A. Reali, F. Auricchio. *Predictive computational models of transcatheter aortic valve implantation*, in "Transcatheter Aortic Valve Implantation: Clinical, Interventional, and Surgical Perspectives", editors: A. Giordano, G. Biondi-Zoccai, G. Frati. Nova Science Publishers, in press.

115. M. Conti, S. Morganti, A. Finotello, R.M. Romarowski, A. Reali, F. Auricchio. *Aortic Endovascular Surgery*, in "Mathematical and Numerical Modeling of the Cardiovascular System and Applications", editors: D. Boffi, L. Pavarino, G. Rozza, S. Scacchi, C. Vergara. Springer, in press.

116. F. Auricchio, M. Conti, A. Lefieux, S. Morganti, A. Reali, G. Rozza, A. Veneziani. *Computational Methods in Cardiovascular Mechanics*, in "Cardiovascular Mechanics", editor: M.R. Labrosse. CRC - Taylor & Francis, in press.

Papers in international conference proceedings:

117. P. Venini, R. Nascimbene, A. Reali, *A Prewavelet Meshless Approach for Plane Inelastic Systems*, Proceedings of the Fifth World Congress on Computational Mechanics (2002).

118. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali, *Enhanced Strain Methods for Elasticity Problems*, Proceedings of the Fourth European Congress on Computational Methods in Applied Sciences and Engineering (2004).

119. F. Auricchio, A. Reali, *A One-Dimensional Model Describing Stress-Induced Solid Phase Transformation with Residual Plasticity*, Proceedings of the II ECCOMAS Thematic Conference on Smart Structures and Materials (2005).

120. F. Auricchio, L. Petrini, A. Reali, *Toward an Exhaustive Modeling of the Macroscopic Behaviour of Shape Memory Alloys*, Proceedings of the III European Conference on Computational Mechanics (2006).

121. F. Auricchio, A. Reali, U. Stefanelli, *Modeling and numerical solutions for shape-memory materials*, Oberwolfach Report 11/2007, MFO Workshop, Analysis and Numerics for Rate-Independent Processes (2007).

122. J.A. Cottrell, T.J.R. Hughes, A. Reali, G. Sangalli, *Isogeometric Discretizations in Structural Dynamics and Wave Propagation*, Proceedings of COMPDYN 2007 – Computational Methods in Structural Dynamics and Earthquake Engineering (2007).

123. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, G. Scovazzi. *Variational Multiscale Residual-driven Turbulence Modeling for Large Eddy Simulation of Incompressible Flow*, Proceedings of the ECCOMAS Thematic Conference on Multi-scale Computational Methods for Solids and Fluids (2007).

124. Y. Bazilevs, V.M. Calo, J.A. Cottrell, T.J.R. Hughes, A. Reali, G. Scovazzi. *Residual-driven Variational Multiscale Turbulence Modeling for Large Eddy Simulation of Incompressible Flow*, Proceedings of the 1st Workshop on Computational Engineering: Fluid Dynamics (2008).

125. T.J.R. Hughes, A. Reali, G. Sangalli, *Isogeometric Methods in Structural Dynamics and Wave Propagation*, Proceedings of COMPDYN 2009 – Computational Methods in Structural Dynamics and Earthquake Engineering (2009).

126. F. Auricchio, M. Conti, S. Morganti, A. Reali, *A discussion of SMA beams under flexure exploiting the shape-memory effect*, Proceedings of the Complas X, X International Conference on Computational Plasticity (2009).

127. A. Reali, *Advanced Computational Tools for Structural Mechanics and Earthquake Engineering*, Proceedings of Earthquake Engineering by the Beach (2009).

128. F. Auricchio, S. Morganti, A. Reali, *SMA numerical modeling versus experimental results*, Proceedings of the ESOMAT2009, 8th European Symposium on Martensitic Transformation (2009).

129. P. Sittner, L. Heller, J. Pilch, P. Sedlak, M. Frost, Y. Chemisky, A. Duval , B.Piotrowski, T. Ben Zineb, E. Patoor, F. Auricchio, S. Morganti, A. Reali, G. Rio , D. Favier, Y. Liu, E. Gibeau, C. Lexcellent , L. Boubakar D. Hartl, S. Oehler, D.C. Lagoudas, J. Van Humbeeck, *Roundrobin SMA modeling*, Proceedings of the ESOMAT2009, 8th European Symposium on Martensitic Transformation (2009).

130. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, *On the constitutive modeling and numerical implementation of shape memory alloys under multiaxial loadings - Part I: constitutive model development at small and finite strains*, Proceedings of the School and Symposium on Smart Structural Systems Technologies (2010).

131. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, *On the constitutive modeling and numerical implementation of shape memory alloys under multiaxial loadings - Part II: numerical implementation and simulations*, Proceedings of the School and Symposium on Smart Structural Systems Technologies (2010).

132. J. Arghavani, F. Auricchio, A. Reali, S. Sohrabpour, *A class of shape memory alloy constitutive models based on a new set of internal variables*, Proceedings of ISME2010, 18^{th} Annual International Conference on Mechanical Engineering (2010).

133. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, *A finite strain SMA constitutive model: comparison of small and finite strain formulations*, Proceedings of ISME2010, 18^{th} Annual International Conference on Mechanical Engineering (2010).

134. J. Arghavani, F. Auricchio, R. Naghdabadi, A. Reali, S. Sohrabpour, *An efficient, non-regularized solution algorithm for a finite strain shape memory alloy constitutive model*, Proceedings of ESDA2010, 10^{th} Biennial Conference on Engineering Systems Design and Analysis (2010).

135. F. Auricchio, A.-L. Bessoud, A. Reali, U. Stefanelli, *Macroscopic modeling of magnetic shape memory alloys*, Oberwolfach Report 14/2010, MFO Workshop, Microstructures in Solids: From Quantum Models to Continua (2010).

136. F. Auricchio, J. Arghavani, M. Conti, S. Morganti, A. Reali, U. Stefanelli, *Shape-memory alloys: effective 3D modeling, computational aspects and analysis of actuator and biomedical devices*, Proceedings of ACTUATOR10 - International Conference and Exhibition on New Actuators and Drive Systems (2010).

137. F. Auricchio, M. Conti, A. Ferrara, S. Morganti, A. Reali, *Patient-specific finite element analysis of carotid artery stenting: impact of constitutive vessel modeling on vessel wall stress distribution*, Proceedings of the 2nd International Conference on Computational & Mathematical Biomedical Engineering (2011).

138. M. Conti, F. Auricchio, A. Reali, *Carotid Artery Stenting simulation: from medical images to finite element analysis*, Proceedings of the first ECCOMAS Young Investigators Conference (2012).

139. J. Kiendl, R. Wüchner, K.-U. Bletzinger, A. Reali, *Isogeometric Shell Analysis and Shape Optimization*, Proceedings of the first ECCOMAS Young Investigators Conference (2012).

140. F. Auricchio, M. Conti, M. Ferraro, A. Reali, *Evaluation of carotid stent scaffolding through patient-specific finite element analysis*, Proceedings of the 6th European Congress on Computational Methods in Applied Sciences and Engineering (2012).

141. F. Auricchio, M. Pingaro, A. Reali, G. Sciarra, P. Venini, S. Vidoli, *Isogeometric analysis for anti-plane fracture problems*, Proceedings of the second ECCOMAS Young Investigators Conference (2013).

142. J. Kiendl, F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali, *Innovative isogeometric formulations for shear deformable beams and plates*, Proceedings of the second ECCOMAS Young Investigators Conference (2013).

143. F. Auricchio, M. Conti, M. Ferraro, S. Morganti, A. Reali, *Patient-specific isogeometric analysis for vascular biomechanics*, Proceedings of the second ECCOMAS Young Investigators Conference (2013).

144. S. Morganti, F. Auricchio, M. Conti, A. Reali, *Patient-specific finite element analysis of transcatheter aortic valve implantation*, Proceedings of the second ECCOMAS Young Investigators Conference (2013).

145. D. Asprone, F. Auricchio, A. Montanino, A. Reali, *A modified finite particle method: Multi-dimensional statics and dynamics*, Proceedings of PARTICLES 2013 – III International Conference on Particle-based Methods - Fundamentals and Applications (2013).

146. 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*, PAMM – Proceedings in Applied Mathematics and Mechanics (2013).

147. D. Asprone, F. Auricchio, A. Montanino, A. Reali, *Solution of the stationary stokes and Navier-Stokes equations using the modified finite particle method in the framework of a least squares residual method*, Proceedings of PARTICLES 2015 – IV International Conference on Particle-based Methods - Fundamentals and Applications (2015).

148. F. Auricchio, M. Ferretti, A. Lefieux, M. Musci, A. Reali, S. Trimarchi, A. Veneziani *Assessment of a Black-box Approach for a Parallel Finite Elements Solver in Computational Hemodynamics*, IEEE Conference Proceedings of the IEEE International Symposium on Parallel and Distributed Processing with Applications (2015).

149. A. Reali, T.J.R. Hughes, *IGA Collocation, aka "the Ultimate Reduced Quadrature IGA Method": Some Results, Applications, and Open Problems*, Oberwolfach Report 8/2016, MFO Mini-Workshop: Mathematical Foundations of Isogeometric Analysis (2016).

150. J. Niiranen, S. Khakalo, V. Balobanov, J. Kiendl, A.H. Niemi, B. Hosseini, A, Reali, *Isogeometric Galerkin methods for gradient-elastic bars, beams, membranes and plates*, Proceedings of the VII European Congress on Computational Methods in Applied Sciences and Engineering (2016).

Papers in national conference proceedings:

151. F. Auricchio, L. Beirão da Veiga, C. Lovadina, A. Reali, *Studio di Stabilità di Alcuni Elementi Finiti Misti per Problemi Elastici in Grandi Deformazioni*, Memorie del XV Convegno Nazionale di Meccanica Computazionale (2004).

152. D. Asprone, A. Prota, G. Manfredi, F. Auricchio, A. Reali, G. Sangalli, *Error evaluation in approximation of derivatives using Smoothed Particle Hydrodynamics method*, Memorie del XVII Convegno Nazionale di Meccanica Computazionale (2008).

Theses:

153. *Soluzione Meshless di Problemi Elastici Piani mediante Sviluppo in Basi di Wavelet* (Wavelet Meshless Solution for Plane Elastic Problems), in Italian (2001). Laurea thesis in Civil Engineering, Università degli Studi di Pavia. Advisor: P. Venini.

154. *An Isogeometric Analysis Approach for the Study of Structural Vibrations* (2004). Master thesis in Earthquake Engineering, ROSE School, Università degli Studi di Pavia. Advisors: T.J.R. Hughes, coadvisor: F. Auricchio.

155. *Advanced Computational Techniques for the Study of Traditional and Innovative Seismic Devices* (2005). PhD thesis in Earthquake Engineering, ROSE School, Università degli Studi di Pavia. Advisor: F. Auricchio, coadvisors: T.J.R. Hughes and L. Petrini.

Research reports (unpublished elsewhere):

156. *Development of finite element tools for assisted seismic design* (2005). Individual study within the PhD in Earthquake Engineering, ROSE School, Università degli Studi di Pavia. Advisors: F. Auricchio and A. Pavese.