

Simone Morganti

Publications

Scientific/scholarly publications:

Author ID (scopus): 36061956200

H-index: 19 (scopus); 24 (scholar)

Number of citations: 1015 (scopus); 1523 (scholar)

Summary:

56 Journal Articles (accepted)

1 Patent

6 Book Chapters

2 Articles on International Review (invited)

11 International conference proceedings

2 Theses

Journal Articles (accepted):

1. L. Airoldi, R. Brucculeri, P. Baldini, F. Pini, B. Vigani, S. Rossi, F. Auricchio, U. Anselmi-Tamburini, **S. Morganti**. 3D printing of copper using water-based colloids and reductive sintering. Accepted in *3D Printing and Additive Manufacturing* (2022).
2. A. Finotello, R. Gorla, N. Brambilla, F. Bedogni, F. Auricchio, **S. Morganti**, Finite element analysis of transcatheter aortic valve implantation: Insights on the modelling of self-expandable devices. Accepted in the *Journal of the Mechanical Behavior of Biomedical Materials*, 123, 104772 (2021).
3. X. He, F. Auricchio, **S. Morganti**, J. Lu. Uniaxial properties of ascending aortic aneurysms in light of effective stretch. Accepted in *Acta Biomaterialia*, DOI:10.1016/j.actbio.2021.09.029 (2021).
4. M. Murer, V. Furlan, G. Formica, **S. Morganti**, B. Previtali, F. Auricchio. Numerical simulation of particles flow in Laser Metal Deposition technology comparing Eulerian-Eulerian and Lagrangian-Eulerian approaches. Accepted in the *Journal of Manufacturing Processes* (2021).
5. **S. Morganti**, F. Fahrendorf, L. De Lorenzis, J.A. Evans, T.J.R. Hughes, A. Reali. Isogeometric collocation: A mixed displacement-pressure method for nearly incompressible elasticity. Accepted in *CMES - Computer Modeling in Engineering & Sciences* (2021).
6. F. Nappi, L. Mazzocchi, C. Spadaccio, D. Attias, I. Timofeva, L. Macron, A. Iervolino, **S. Morganti**, F. Auricchio. Corevalve vs Sapien 3 Transcatheter Aortic Valve Replacement: A Finite Element Analysis Study. Accepted in *Bioengineering* (2021).
7. A. Finotello, R. Romarowski, R. Gorla, G. Bianchi, F. Bedogni, F. Auricchio, **S. Morganti**. Performance of high conformability vs. high radial force devices in the virtual treatment of TAVI patients with Bicuspid Aortic Valve. Accepted in *Medical Engineering & Physics* (2021)
8. R. Gorla, M. Casenghi, A. Finotello, F. De Marco, **S. Morganti**, D. Regazzoli, G. Bianchi, E. Acerbi, A. Popolo Rubbio, N. Brambilla, L. Testa, F. Castriota, F. Auricchio, B. Reimers, F. Bedogni. Outcome of transcatheter aortic valve replacement in bicuspid aortic valve stenosis with new-generation devices. Accepted in *Interactive CardioVascular and Thoracic Surgery (ICVTS-2020-900683)* (2020)

9. F. Fahrendorf, **S. Morganti**, A. Reali, T.J.R. Hughes, L. De Lorenzis. Mixed stress-displacement isogeometric collocation for nearly incompressible elasticity and elastoplasticity, *Computer Methods in Applied Mechanics and Engineering*, 369, 113112 (2020).
10. F. Nappi, L. Mazzocchi, I. Timofeva, L. MacRon, **S. Morganti**, S.S.A. Singh, D. Attias, A. Congedo, F. Auricchio (2020). A finite element analysis study from 3D CT to predict transcatheter heart valve thrombosis. *DIAGNOSTICS*, vol. 10, p. 1-13, ISSN: 2075-4418, doi: 10.3390/diagnostics10040183
11. **S. Morganti**, M.L. Mazzucchelli, M. Alvaro, A. Reali. A numerical application of the Eshelby theory for geobarometry of non-ideal host-inclusion systems, *Meccanica* (2020), ISSN: 0025-6455, doi: 10.1007/s11012-020-01135-z.
12. P. Totaro, S. Marconi, **S. Morganti**, A.G. Corsico, S. Pelenghi, F. Auricchio. Multidisciplinary preoperative simulations to optimize surgical outcomes in a challenging case of complete double aortic arch in the adult, *Journal of Cardiac Surgery*, DOI: 10.1111/jocs.14448 (2020).
13. R. Gorla, F. De Marco, **S. Morganti**, A. Finotello, N. Brambilla, L. Testa, M.L. Agnifili, M. Tusa, F. Auricchio, F. Bedogni. Transcatheter aortic valve implantation with Portico and Evolut-R in patients with elliptic aortic annulus, *EuroIntervention*, 15(18):e1588-e1591 (2020).
14. A. Cattenone, **S. Morganti**, F. Auricchio. Basis of the Lattice Boltzmann Method for Additive Manufacturing, *Archives of Computational Methods in Engineering*, 27:1109-1133 (2020).
15. M.L. Mazzucchelli, A. Reali, **S. Morganti**, R.J. Angel, M. Alvaro. Elastic geobarometry for anisotropic inclusions in cubic hosts, *Lithos*, 350:105218 (2019).
16. G. Balduzzi, **S. Morganti**, J. Fussl, M. Aminbaghai, A. Reali, F. Auricchio. Modeling the non-trivial behavior of anisotropic beams: a simple Timoshenko beam with enhanced stress recovery and constitutive relations, *Composite Structures*, 229, 111265 (2019).
17. F. Auricchio, A. Bacigalupo, L. Gambarotta, M. Lepidi, **S. Morganti**, F. Vadala. A novel layered topology of auxetic materials based on the tetrachiral honeycomb microstructure, *Materials and Design*, 179, 107883 (2019).
18. C. Anzolini, F. Nestola, M.L. Mazzucchelli, M. Alvaro, P. Nimis, A. Gianese, **S. Morganti**, F. Marone, M. Campione, J.W. Harris. Depth of diamond formation obtained from single periclase inclusions, *Geology* (2019), DOI: 10.1130/G45605.1.
19. A. Cattenone, **S. Morganti**, G. Alaimo, F. Auricchio. Finite element analysis of Additive Manufacturing based on Fused Deposition Modeling (FDM): distortion prediction and comparison with experimental data. *Journal of Manufacturing Science and Engineering*, vol. 141, DOI: 10.1115/1.4041626 (2019).
20. F. Nappi, L. Mazzocchi, S.S.A. Singh, **S. Morganti**, J.-L. Sablayrolles, C. Acar, F. Auricchio. Complementary Role of the Computed Biomodelling through Finite Element Analysis and Computed Tomography for Diagnosis of Transcatheter Heart Valve Thrombosis, *BioMed Research International*, vol. 2018, Article ID 1346308, 13 pages (2018).
21. A. Nenna, S.S.A. Singh, **S. Morganti**, L. Mazzocchi, F. Auricchio, M. Chello, F. Nappi. Transcatheter technologies for valvular replacement: an update, *Cardiovascular & Thoracic Surgery, Surgical Technology International* vol. 32:190-199, 2018.
22. R. Romarowski, M. Conti, **S. Morganti**, V. Grassi, M.M. Marrocco-Trischitta, S. Trimarchi, F. Auricchio, Computational simulation of TEVAR in the ascending aorta for optimal endograft selection: a patient-specific case study, *Computers in Biology and Medicine*, DOI:CBM-D-18-00910R2.
23. M. Conti; S. Vandenberghe, S. Marconi, E. Ferrari, R. Romarowski, **S. Morganti**, F. Auricchio, S. Demertzis. Reversed auxiliary flow to reduce embolism risk during TAVI: a computational simulation and experimental study, *Cardiovascular Engineering and Technology*,
24. R. Romarowski, A. Lefieux, **S. Morganti**, A. Veneziani, F. Auricchio. Patient-Specific CFD modeling in the Thoracic Aorta with PC-MRI Based Boundary Conditions: a Least-Square 3-Element Windkessel approach, *International Journal for Numerical Methods in Biomedical Engineering*, 34:e3134 (2018).

25. R. 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, *Computers & Fluids*, DOI:10.1016/j.compfluid.2018.06.002.
26. A. Sibileau, A. García-González, F. Auricchio, **S. Morganti**, P. Diez. Explicit parametric solutions of lattice structures with proper generalized decomposition (PGD), *Computational Mechanics*, 62(4):871-891 (2018).
27. **S. Morganti**, C. Callari, F. Auricchio, A. Reali. Mixed isogeometric collocation methods for the simulation of poromechanics problems in 1D, *Meccanica*, 53(6):1441-1454 (2018).
28. M.L. Mazzucchelli, P. Burnley, R.J. Angel, **S. Morganti**, M.C. Domeneghetti, F. Nestola, M. Alvaro. Elastic geothermobarometry: corrections for the geometry of the host-inclusion system, *Geology*, DOI:10.1130/G39807.1.
29. 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*, 34(4), e2938 (2018).
30. A. Ferrara, **S. Morganti**, P. Totaro, F. Auricchio. Effects of clinico-pathological risk factors on in-vitro mechanical properties of human dilated ascending aorta, *Journal of the Mechanical Behavior of Biomedical Materials*, 77: 1-11 (2018).
31. A. Finotello, **S. Morganti**, F. Auricchio. Finite element analysis of TAVI: impact of native aortic root computational modeling strategies on simulation outcomes, *Medical Engineering & Physics*, 47:2-12 (2017).
32. G. Balduzzi, **S. Morganti**, F. Auricchio, A. Reali. Non-prismatic Timoshenko-like beam model: Numerical solution via isogeometric collocation, *Computers & Mathematics with Applications*, 74(7): 1531-1541 (2017).
33. F. Auricchio, A. Ferrara, E. Lanzarone, **S. Morganti**, P. Totaro. A regression method based on non-invasive clinical data to predict the mechanical behavior of ascending aorta aneurysmal tissue, *IEEE Transactions on Biomedical Engineering*, DOI: 10.1109/TBME.2016.2645762.
34. S. Trimarchi, A. Kamman, C. Lomazzi, S. Segreti, M. Cova, C. De Vincentiis, A. Frigiola, L. Menicanti, M.M. Marrocco-Trischitta, V. Grassi, **S. Morganti**, M. Conti, F. Auricchio, V. Rampoldi. Activities at Thoracic Aortic Research Center, *European Heart Journal Supplement*, Volume 18, 28 April 2016, Pag. E57-E63, IRCCS Policlinico San Donato.
35. 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 and Fluids*, 141: 54-61 (2016).
36. F. Nauta, M. Conti, S. Marconi, A. Kamman, G. Alaimo, **S. Morganti**, A. Ferrara, J. van Herwaarden, F. Moll, F. Auricchio, S. Trimarchi. An experimental investigation of the impact of thoracic endovascular aortic repair on longitudinal strain, *European Journal of Cardiothoracic Surgery*, 50(5): 955-961 (2016).
37. **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*, 49(12):2513-2519 (2016).
38. A. Ferrara, **S. Morganti**, P. Totaro, A. Mazzola, F. Auricchio. Human dilated ascending aorta: mechanical characterization via uniaxial tensile tests, *Journal of the Mechanical Behavior of Biomedical Materials*, 53: 257-271 (2016).
39. 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*, 6(3): 585-597 (2015).
40. 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*, 295: 347-361 (2015).

41. **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*, 284: 508-520 (2015).
42. M. Belloli, S. Giappino, **S. Morganti**, S. Muggiasca, A. Zasso. Vortex induced vibrations at high Reynolds numbers on circular cylinders, *Ocean Engineering*, 94: 140-154 (2015).
43. **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*, 47(11): 2547-2555 (2014).
44. 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*, 54(4): 943-953 (2014).
45. 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*, 17(12): 1347-1357 (2014).
46. 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*, 17(3): 277-285 (2014).
47. **S. Morganti**, A. Valentini, V. Favalli, A. Serio, F.I. Gambarin, D. Vella, L. Mazzocchi, M. Massetti, F. Auricchio, E. Arbustini. Aortic root 3D morphological model from 2D-Echo images, *Computers in Biology and Medicine*, 43(12): 2196-2204 (2013).
48. D. Asprone, F. Auricchio, C. Menna, **S. Morganti**, A. Prota, A. Reali. Statistical finite element analysis of the buckling behavior of honeycomb structures, *Composites Structures*, 105: 240-255 (2013).
49. 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 of Numerical Methods in Biomedical Engineering*, 24(6): 645-664 (2013).
50. F. Auricchio, A. Ferrara, **S. Morganti**. Comparison and critical analysis of constitutive models with respect to their ability in fitting experimental data on human aortic valve, *Annals of Solid and Structural Mechanics*, 4:1-14 (2012).
51. P. Totaro, **S. Morganti**, C.L. Ngo Yon, R. Dore, N. Castiglioni, M. Conti, F. Auricchio, M. Viganó. Computational Finite Element Analyses to optimize graft sizing during aortic valve sparing procedure, *Journal of Heart Valve Disease*, 21:141-147 (2012).
52. P. Totaro, **S. Morganti**, F. Auricchio, M. Viganó. Computer-based analysis to optimize prosthesis sizing during aortic valve surgery, *International Journal of Cardiology*, DOI: 10.1016/j.ijcard.2011.06.079.
53. F. Auricchio, M. Conti, **S. Morganti**, P. Totaro. A computational tool to support pre-operative planning of stentless aortic valve implant, *Medical Engineering & Physics*, 33:1183-1192 (2011).
54. F. Auricchio, M. Conti, **S. Morganti**, S. Demertzis. Finite element analysis of aortic root dilation: a new procedure to reproduce pathology based on experimental data, *Computer Methods in Biomechanics and Biomedical Engineering*, 14:875-882 (2011).
55. 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*, 20: 712-718 (2011).
56. 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*, 57:225-243 (2010).

Patents:

1. U. Anselmi-Tamburini, F. Auricchio, **S. Morganti**. *Manufacture of ceramic objects*, Patent number: PCT/EP2017/059932 (2017).

Book Chapters:

1. **S. Morganti**, M. Conti, A. Reali, F. Auricchio. Predictive computational models of transcatheter aortic valve implantation, in: *Transcatheter Aortic Valve Implantation*, Nova Science Publisher (2018).
2. F. Auricchio, M. Conti, A. Lefieux, **S. Morganti**, A. Reali, G. Rozza, A. Veneziani. Computational methods in cardiovascular mechanics, in: *Cardiovascular Mechanics*, Lumina Datamatics, Taylor & Francis Group (2018).
3. M. Conti, **S. Morganti**, A. Finotello, R. Romarowski, A. Reali, F. Auricchio. Aortic Endovascular Surgery, in *Mathematical and Numerical Modeling of the Cardiovascular System and Applications*, Springer, series SEMA/SIMAI (2018).
4. 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*, Birkhauser (2016).
5. F. Auricchio, M. Conti, **S. Morganti**. Aortic biological prosthetic valve for open-surgery and percutaneous implant: procedure simulation and performance assessment, su *Cardiovascular and Cardiac Therapeutic Devices*, Springer (2013).
6. F. Auricchio, M. Conti, **S. Morganti**, A. Reali. Shape Memory Alloys: Material Modeling and Device Finite Element Simulations, in IUTAM Symposium in *Multiscale Modelling of Fatigue, Damage and Fracture in Smart Materials System*, edito da: Springer (2011).

International Newsletter (invited)

1. A. Cattenone, G. Alaimo, **S. Morganti**, F. Auricchio, Modeling and Simulation of Additive Manufacturing Processes, *ECCOMAS (European Community on Computational Methods in Applied Sciences) Newsletter* (June 2018).
2. F. Auricchio, M. Conti, **S. Morganti**, A. Reali, Patient-specific simulations in cardiovascular biomechanics: from diagnosis to prediction, *ECCOMAS (European Community on Computational Methods in Applied Sciences) Newsletter* (June 2012).

International conference proceedings:

1. TCT-781. Thoracic Endovascular Repair Decreases Longitudinal Aortic Distensibility: Experimental Study in an Ex-Vivo Porcine Model, *Journal of the American College of Cardiology* 10/2015; 66(15):B317. DOI:10.1016/j.jacc.2015.08.1091
2. L. Antiga, F. Auricchio, M. Conti, A. Lefieux, **S. Morganti**, A. Reali, Rodrigo M. Romarowski, F. Secchi, C. Trentin, S. Trimarchi, A. Veneziani. Patient-specific CFD of aortic haemodynamics: bringing cardiovascular virtual reality to clinical bedside practice, 4th ICMBE conference (Cachan -FR-, 29 June- 1st July 2015).
3. F. Auricchio, J. Arghavani, M. Conti, **S. Morganti**, A. Reali, U. Stefanelli, *Recent developments on the 3D modeling of SMA*, 11th International Conference on the Mechanical Behavior of Materials (Como, 5-9 June 2011).
4. F. Auricchio, M. Conti, **S. Morganti**. *Finite Element Analysis of the Edwards Sapien Valve Implant: Toward a Patient-Specific Application*. ISB2011 (Brussel, Belgium, 3-7 July 2011).
5. 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*. CMBE2011 (Washington D.C., USA, 30 March - 1 April 2011).
6. F. Auricchio, M. Conti, **S. Morganti**, P. Totaro, M. Viganò. *Finite Element Analysis of Stentless Valve Implant in Patient-Specific Aortic Root Geometry*. CMBE2011 (Washington D.C., USA, 30 March - 1 April 2011).

7. 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.
8. 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 and Jan Van Humbeeck. *Roundrobin SMA modeling*. DOI: 10.1051/esomat/200908001. (2009)
9. 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).
10. F. Auricchio, M. Conti, **S. Morganti**, A. Reali. Shape Memory Alloys: Material Modeling and Device Finite Element Simulations. IUTAM Symposium on Multiscale Modeling of Fatigue, Damage and Fracture in Smart Materials Systems. 1-4 September 2009, Freiberg, Germany.
11. F. Auricchio, **S. Morganti**, A. Reali. SMA numerical modeling versus experimental results, Proceedings of the ESOMAT2009, 8th European Symposium on Martensitic Transformation (2009).

Thesis:

1. **PhD thesis:** Finite Element Analysis of Aortic Valve Surgery, University of Pavia (2012)
2. **Master thesis:** Vortex-induced vibrations at high Reynolds numbers, Politecnico of Milan (2008)