

Claudio Chiastra

List of Publications by Year in descending order

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84
papers

1,777
citations

257101

24
h-index

315357

38
g-index

85
all docs

85
docs citations

85
times ranked

1444
citing authors

#	ARTICLE	IF	CITATIONS
1	Computational fluid dynamic simulations of image-based stented coronary bifurcation models. <i>Journal of the Royal Society Interface</i> , 2013, 10, 20130193.	1.5	104
2	Patient-specific simulations of stenting procedures in coronary bifurcations: Two clinical cases. <i>Medical Engineering and Physics</i> , 2013, 35, 1272-1281.	0.8	92
3	Biomechanical Modeling to Improve Coronary Artery Bifurcation Stenting. <i>JACC: Cardiovascular Interventions</i> , 2015, 8, 1281-1296.	1.1	84
4	Fluid-Structure Interaction Model of a Percutaneous Aortic Valve: Comparison with an In Vitro Test and Feasibility Study in a Patient-Specific Case. <i>Annals of Biomedical Engineering</i> , 2016, 44, 590-603.	1.3	66
5	Multidirectional wall shear stress promotes advanced coronary plaque development: comparing five shear stress metrics. <i>Cardiovascular Research</i> , 2020, 116, 1136-1146.	1.8	66
6	On the necessity of modelling fluid-structure interaction for stented coronary arteries. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2014, 34, 217-230.	1.5	61
7	On the Modeling of Patient-Specific Transcatheter Aortic Valve Replacement: A Fluid-Structure Interaction Approach. <i>Cardiovascular Engineering and Technology</i> , 2019, 10, 437-455.	0.7	61
8	Sequential Structural and Fluid Dynamic Numerical Simulations of a Stented Bifurcated Coronary Artery. <i>Journal of Biomechanical Engineering</i> , 2011, 133, 121010.	0.6	60
9	Computational replication of the patient-specific stenting procedure for coronary artery bifurcations: From OCT and CT imaging to structural and hemodynamics analyses. <i>Journal of Biomechanics</i> , 2016, 49, 2102-2111.	0.9	60
10	The Atheroprotective Nature of Helical Flow in Coronary Arteries. <i>Annals of Biomedical Engineering</i> , 2019, 47, 425-438.	1.3	58
11	Healthy and diseased coronary bifurcation geometries influence near-wall and intravascular flow: A computational exploration of the hemodynamic risk. <i>Journal of Biomechanics</i> , 2017, 58, 79-88.	0.9	57
12	Effects of Vessel Tortuosity on Coronary Hemodynamics: An Idealized and Patient-Specific Computational Study. <i>Annals of Biomedical Engineering</i> , 2016, 44, 2228-2239.	1.3	51
13	Computational fluid dynamics of stented coronary bifurcations studied with a hybrid discretization method. <i>European Journal of Mechanics, B/Fluids</i> , 2012, 35, 76-84.	1.2	39
14	A fully coupled computational fluid dynamics agent-based model of atherosclerotic plaque development: Multiscale modeling framework and parameter sensitivity analysis. <i>Computers in Biology and Medicine</i> , 2020, 118, 103623.	3.9	37
15	Drug delivery patterns for different stenting techniques in coronary bifurcations: a comparative computational study. <i>Biomechanics and Modeling in Mechanobiology</i> , 2013, 12, 657-669.	1.4	35
16	The impact of helical flow on coronary atherosclerotic plaque development. <i>Atherosclerosis</i> , 2020, 300, 39-46.	0.4	34
17	Simultaneous kissing stents to treat unprotected left main stem coronary artery bifurcation disease; stent expansion, vessel injury, hemodynamics, tissue healing, restenosis, and repeat revascularization. <i>Catheterization and Cardiovascular Interventions</i> , 2018, 92, E381-E392.	0.7	31
18	A framework for computational fluid dynamic analyses of patient-specific stented coronary arteries from optical coherence tomography images. <i>Medical Engineering and Physics</i> , 2017, 47, 105-116.	0.8	30

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19	Design Rules for Producing Cardiovascular Stents by Selective Laser Melting: Geometrical Constraints and Opportunities. <i>Procedia Structural Integrity</i> , 2019, 15, 16-23.	0.3	30
20	Computing patient-specific hemodynamics in stented femoral artery models obtained from computed tomography using a validated 3D reconstruction method. <i>Medical Engineering and Physics</i> , 2020, 75, 23-35.	0.8	30
21	Simulation of oxygen transfer in stented arteries and correlation with in-stent restenosis. <i>International Journal for Numerical Methods in Biomedical Engineering</i> , 2013, 29, 1373-1387.	1.0	29
22	Bench testing and coronary artery bifurcations: a consensus document from the European Bifurcation Club. <i>EuroIntervention</i> , 2018, 13, e1794-e1803.	1.4	28
23	Patient-specific computer modelling of coronary bifurcation stenting: the John Doe programme. <i>EuroIntervention</i> , 2015, 11, V35-V39.	1.4	26
24	Patient-Specific Modeling of Stented Coronary Arteries Reconstructed from Optical Coherence Tomography: Towards a Widespread Clinical Use of Fluid Dynamics Analyses. <i>Journal of Cardiovascular Translational Research</i> , 2018, 11, 156-172.	1.1	25
25	Reconstruction of stented coronary arteries from optical coherence tomography images: Feasibility, validation, and repeatability of a segmentation method. <i>PLoS ONE</i> , 2017, 12, e0177495.	1.1	25
26	Virtual bench testing to study coronary bifurcation stenting. <i>EuroIntervention</i> , 2015, 11, V31-V34.	1.4	25
27	Stent deformation, physical stress, and drug elution obtained with provisional stenting, conventional culotte and Tryton-based culotte to treat bifurcations: a virtual simulation study. <i>EuroIntervention</i> , 2014, 9, 1441-1453.	1.4	25
28	Risk of myocardial infarction based on endothelial shear stress analysis using coronary angiography. <i>Atherosclerosis</i> , 2022, 342, 28-35.	0.4	25
29	Hemodynamics of Stent Implantation Procedures in Coronary Bifurcations: An In Vitro Study. <i>Annals of Biomedical Engineering</i> , 2017, 45, 542-553.	1.3	24
30	Coronary fractional flow reserve measurements of a stenosed side branch: a computational study investigating the influence of the bifurcation angle. <i>BioMedical Engineering OnLine</i> , 2016, 15, 91.	1.3	22
31	Does the inflow velocity profile influence physiologically relevant flow patterns in computational hemodynamic models of left anterior descending coronary artery?. <i>Medical Engineering and Physics</i> , 2020, 82, 58-69.	0.8	21
32	Early Atherosclerotic Changes in Coronary Arteries are Associated with Endothelium Shear Stress Contraction/Expansion Variability. <i>Annals of Biomedical Engineering</i> , 2021, 49, 2606-2621.	1.3	21
33	Location-Specific Comparison Between a 3D In-Stent Restenosis Model and Micro-CT and Histology Data from Porcine In Vivo Experiments. <i>Cardiovascular Engineering and Technology</i> , 2019, 10, 568-582.	0.7	20
34	3D reconstruction of coronary artery bifurcations from coronary angiography and optical coherence tomography: feasibility, validation, and reproducibility. <i>Scientific Reports</i> , 2020, 10, 18049.	1.6	19
35	In-Stent Restenosis Progression in Human Superficial Femoral Arteries: Dynamics of Lumen Remodeling and Impact of Local Hemodynamics. <i>Annals of Biomedical Engineering</i> , 2021, 49, 2349-2364.	1.3	19
36	Automatic segmentation of optical coherence tomography pullbacks of coronary arteries treated with bioresorbable vascular scaffolds: Application to hemodynamics modeling. <i>PLoS ONE</i> , 2019, 14, e0213603.	1.1	18

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37	Wall Shear Stress Topological Skeleton Analysis in Cardiovascular Flows: Methods and Applications. <i>Mathematics</i> , 2021, 9, 720.	1.1	18
38	Local fluid dynamics in patients with bifurcated coronary lesions undergoing percutaneous coronary interventions. <i>Cardiology Journal</i> , 2021, 28, 321-329.	0.5	18
39	Multiscale Computational Modeling of Vascular Adaptation: A Systems Biology Approach Using Agent-Based Models. <i>Frontiers in Bioengineering and Biotechnology</i> , 2021, 9, 744560.	2.0	18
40	Baseline local hemodynamics as predictor of lumen remodeling at 1-year follow-up in stented superficial femoral arteries. <i>Scientific Reports</i> , 2021, 11, 1613.	1.6	16
41	In silico biomechanical design of the metal frame of transcatheter aortic valves: multi-objective shape and cross-sectional size optimization. <i>Structural and Multidisciplinary Optimization</i> , 2021, 64, 1825-1842.	1.7	15
42	Impact of lower limb movement on the hemodynamics of femoropopliteal arteries: A computational study. <i>Medical Engineering and Physics</i> , 2020, 81, 105-117.	0.8	15
43	A predictive multiscale model of in-stent restenosis in femoral arteries: linking haemodynamics and gene expression with an agent-based model of cellular dynamics. <i>Journal of the Royal Society Interface</i> , 2022, 19, 20210871.	1.5	14
44	Biomechanical Impact of Wrong Positioning of a Dedicated Stent for Coronary Bifurcations: A Virtual Bench Testing Study. <i>Cardiovascular Engineering and Technology</i> , 2018, 9, 415-426.	0.7	13
45	Does clinical data quality affect fluid-structure interaction simulations of patient-specific stenotic aortic valve models?. <i>Journal of Biomechanics</i> , 2019, 94, 202-210.	0.9	13
46	Application of an OCT-based 3D reconstruction framework to the hemodynamic assessment of an ulcerated coronary artery plaque. <i>Medical Engineering and Physics</i> , 2020, 78, 74-81.	0.8	13
47	Patient-specific computational simulation of coronary artery bifurcation stenting. <i>Scientific Reports</i> , 2021, 11, 16486.	1.6	13
48	Impact of plaque type and side branch geometry on side branch compromise after provisional stent implantation: a simulation study. <i>EuroIntervention</i> , 2017, 13, e236-e245.	1.4	13
49	Modelling coronary flows: impact of differently measured inflow boundary conditions on vessel-specific computational hemodynamic profiles. <i>Computer Methods and Programs in Biomedicine</i> , 2022, 221, 106882.	2.6	11
50	Double-Kissing Nanocrush for Bifurcation Lesions: Development, Bioengineering, Fluid Dynamics, and Initial Clinical Testing. <i>Canadian Journal of Cardiology</i> , 2020, 36, 852-859.	0.8	10
51	Superficial femoral artery stenting: Impact of stent design and overlapping on the local hemodynamics. <i>Computers in Biology and Medicine</i> , 2022, 143, 105248.	3.9	10
52	Oversizing of self-expanding Nitinol vascular stents – A biomechanical investigation in the superficial femoral artery. <i>Journal of the Mechanical Behavior of Biomedical Materials</i> , 2022, 132, 105259.	1.5	10
53	3D modelling of drug-coated balloons for the treatment of calcified superficial femoral arteries. <i>PLoS ONE</i> , 2021, 16, e0256783.	1.1	9
54	Exploring wall shear stress spatiotemporal heterogeneity in coronary arteries combining correlation-based analysis and complex networks with computational hemodynamics. <i>Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine</i> , 2020, 234, 1209-1222.	1.0	7

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55	Coronary Artery Stenting Affects Wall Shear Stress Topological Skeleton. <i>Journal of Biomechanical Engineering</i> , 2022, 144, .	0.6	7
56	A Patient-Specific Study Investigating the Relation between Coronary Hemodynamics and Neo-Intimal Thickening after Bifurcation Stenting with a Polymeric Bioresorbable Scaffold. <i>Applied Sciences (Switzerland)</i> , 2018, 8, 1510.	1.3	6
57	Three dimensional reconstruction of coronary artery stents from optical coherence tomography: experimental validation and clinical feasibility. <i>Scientific Reports</i> , 2021, 11, 12252.	1.6	6
58	Comparison of Swine and Human Computational Hemodynamics Models for the Study of Coronary Atherosclerosis. <i>Frontiers in Bioengineering and Biotechnology</i> , 2021, 9, 731924.	2.0	6
59	First report on free expansion simulations of a dedicated bifurcation stent mounted on a stepped balloon. <i>EuroIntervention</i> , 2015, 10, e1-e3.	1.4	6
60	Multiscale agent-based modeling of restenosis after percutaneous transluminal angioplasty: Effects of tissue damage and hemodynamics on cellular activity. <i>Computers in Biology and Medicine</i> , 2022, 147, 105753.	3.9	6
61	Differences in rotational positioning and subsequent distal main branch rewiring of the Tryton stent: An optical coherence tomography and computational study. <i>Catheterization and Cardiovascular Interventions</i> , 2018, 92, 897-906.	0.7	5
62	Multicomponent Mechanical Characterization of Atherosclerotic Human Coronary Arteries: An Experimental and Computational Hybrid Approach. <i>Frontiers in Physiology</i> , 2021, 12, 733009.	1.3	5
63	Impact of bioresorbable scaffold design characteristics on local haemodynamic forces: an ex vivo assessment with computational fluid dynamics simulations. <i>EuroIntervention</i> , 2020, 16, e930-e937.	1.4	5
64	A Multiscale Model of Atherosclerotic Plaque Development: Toward a Coupling Between an Agent-Based Model and CFD Simulations. <i>Lecture Notes in Computer Science</i> , 2019, , 410-423.	1.0	5
65	Applications of computational fluid dynamics to congenital heart diseases: a practical review for cardiovascular professionals. <i>Expert Review of Cardiovascular Therapy</i> , 2021, 19, 907-916.	0.6	5
66	Hemodynamic perturbations due to the presence of stents. , 2021, , 251-271.		4
67	Mismatch between morphological and functional assessment of the length of coronary artery disease. <i>International Journal of Cardiology</i> , 2021, 334, 1-9.	0.8	4
68	Modeling of Blood Flow in Stented Coronary Arteries. , 2015, , 335-370.		3
69	Optimal Site for Proximal Optimization Technique in Complex Coronary Bifurcation Stenting: A Computational Fluid Dynamics Study. <i>Cardiovascular Revascularization Medicine</i> , 2020, 21, 826-832.	0.3	2
70	Modeling the stent deployment in coronary arteries and coronary bifurcations. , 2021, , 563-582.		2
71	Trends in biomedical engineering: focus on Patient Specific Modeling and Life Support Systems. <i>Journal of Applied Biomaterials and Biomechanics</i> , 2011, 9, 109-117.	0.4	1
72	Coronary stenting: From optical coherence tomography to fluid dynamic simulations. , 2013, , .		1

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73	First Report of the One-Point Transradial Two-Sheathless Catheters Insertion (OTRANTO) Technique. JACC: Cardiovascular Interventions, 2020, 13, e9-e10.	1.1	1
74	Fluid-Structure Simulation of a Transcatheter Aortic Valve Implantation: Potential Application to Patient-Specific Cases. Lecture Notes in Bioengineering, 2018, , 93-98.	0.3	1
75	An Immersed Boundary Method for Drug Release Applied to Drug Eluting Stents Dedicated to Arterial Bifurcations. , 2013, , 401-409.		1
76	Patient-Specific Stented Coronary Bifurcations: Numerical Analysis of Near-Wall Quantities and the Bulk Flow. , 2013, , .		0
77	A method for coronary bifurcation centerline reconstruction from angiographic images based on focalization optimization. , 2016, 2016, 4165-4168.		0
78	Coronary Vulnerable Plaque Development Is Promoted By Multidirectional Wall Shear Stress - A Pre-Clinical Imaging Study. Atherosclerosis, 2019, 287, e105.	0.4	0
79	P3109 Coronary vulnerable plaque development is promoted by multidirectional wall shear stress. European Heart Journal, 2019, 40, .	1.0	0
80	Biomechanical Evaluation of Different Balloon Positions for Proximal Optimization Technique in Left Main Bifurcation Stenting. Cardiovascular Revascularization Medicine, 2020, 21, 1533-1538.	0.3	0
81	Numerical Modelling of Stenting Procedures in Coronary Bifurcations: A Structural and Fluid Dynamic Combined Approach. , 2011, , .		0
82	Fluid-dynamics and biological features of unstable plaques: different shear stress for different plaques. European Heart Journal, 2020, 41, .	1.0	0
83	Semi-Automatic Reconstruction of Patient-Specific Stented Coronaries based on Data Assimilation and Computer Aided Design. Cardiovascular Engineering and Technology, 2022, , .	0.7	0
84	Wall Shear Stress Topological Skeleton Variability Predicts Myocardial Infarction. European Journal of Vascular and Endovascular Surgery, 2022, 63, e39-e40.	0.8	0