Claudio Chiastra

List of Publications by Year
in descending order

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	Risk of myocardial infarction based on endothelial shear stress analysis using coronary angiography. Atherosclerosis, 2022, 342, 28-35.	0.4	25
2	Semi-Automatic Reconstruction of Patient-Specific Stented Coronaries based on Data Assimilation and Computer Aided Design. Cardiovascular Engineering and Technology, 2022, , .	0.7	0
3	Coronary Artery Stenting Affects Wall Shear Stress Topological Skeleton. Journal of Biomechanical Engineering, 2022, 144, .	0.6	7
4	Superficial femoral artery stenting: Impact of stent design and overlapping on the local hemodynamics. Computers in Biology and Medicine, 2022, 143, 105248.	3.9	10
5	Wall Shear Stress Topological Skeleton Variability Predicts Myocardial Infarction. European Journal of Vascular and Endovascular Surgery, 2022, 63, e39-e40.	0.8	0
6	A predictive multiscale model of in-stent restenosis in femoral arteries: linking haemodynamics and gene expression with an agent-based model of cellular dynamics. Journal of the Royal Society Interface, 2022, 19, 20210871.	1.5	14
7	Modelling coronary flows: impact of differently measured inflow boundary conditions on vessel-specific computational hemodynamic profiles. Computer Methods and Programs in Biomedicine, 2022, 221, 106882.	2.6	11
8	Oversizing of self-expanding Nitinol vascular stents â€" A biomechanical investigation in the superficial femoral artery. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 132, 105259.	1.5	10
9	Multiscale agent-based modeling of restenosis after percutaneous transluminal angioplasty: Effects of tissue damage and hemodynamics on cellular activity. Computers in Biology and Medicine, 2022, 147, 105753.	3.9	6
10	Hemodynamic perturbations due to the presence of stents. , 2021, , 251-271.		4
11	Baseline local hemodynamics as predictor of lumen remodeling at 1-year follow-up in stented superficial femoral arteries. Scientific Reports, 2021, 11, 1613.	1.6	16
12	Wall Shear Stress Topological Skeleton Analysis in Cardiovascular Flows: Methods and Applications. Mathematics, 2021, 9, 720.	1.1	18
13	Local fluid dynamics in patients with bifurcated coronary lesions undergoing percutaneous coronary interventions. Cardiology Journal, 2021, 28, 321-329.	0.5	18
14	In-Stent Restenosis Progression in Human Superficial Femoral Arteries: Dynamics of Lumen Remodeling and Impact of Local Hemodynamics. Annals of Biomedical Engineering, 2021, 49, 2349-2364.	1.3	19
15	In silico biomechanical design of the metal frame of transcatheter aortic valves: multi-objective shape and cross-sectional size optimization. Structural and Multidisciplinary Optimization, 2021, 64, 1825-1842.	1.7	15
16	Three dimensional reconstruction of coronary artery stents from optical coherence tomography: experimental validation and clinical feasibility. Scientific Reports, 2021, 11, 12252.	1.6	6
17	Early Atherosclerotic Changes in Coronary Arteries are Associated with Endothelium Shear Stress Contraction/Expansion Variability. Annals of Biomedical Engineering, 2021, 49, 2606-2621.	1.3	21
18	Mismatch between morphological and functional assessment of the length of coronary artery disease. International Journal of Cardiology, 2021, 334, 1-9.	0.8	4

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19	Comparison of Swine and Human Computational Hemodynamics Models for the Study of Coronary Atherosclerosis. Frontiers in Bioengineering and Biotechnology, 2021, 9, 731924.	2.0	6
20	Patient-specific computational simulation of coronary artery bifurcation stenting. Scientific Reports, 2021, 11, 16486.	1.6	13
21	Multicomponent Mechanical Characterization of Atherosclerotic Human Coronary Arteries: An Experimental and Computational Hybrid Approach. Frontiers in Physiology, 2021, 12, 733009.	1.3	5
22	Modeling the stent deployment in coronary arteries and coronary bifurcations. , 2021, , 563-582.		2
23	3D modelling of drug-coated balloons for the treatment of calcified superficial femoral arteries. PLoS ONE, 2021, 16, e0256783.	1.1	9
24	Applications of computational fluid dynamics to congenital heart diseases: a practical review for cardiovascular professionals. Expert Review of Cardiovascular Therapy, 2021, 19, 907-916.	0.6	5
25	Multiscale Computational Modeling of Vascular Adaptation: A Systems Biology Approach Using Agent-Based Models. Frontiers in Bioengineering and Biotechnology, 2021, 9, 744560.	2.0	18
26	Multidirectional wall shear stress promotes advanced coronary plaque development: comparing five shear stress metrics. Cardiovascular Research, 2020, 116, 1136-1146.	1.8	66
27	Computing patient-specific hemodynamics in stented femoral artery models obtained from computed tomography using a validated 3D reconstruction method. Medical Engineering and Physics, 2020, 75, 23-35.	0.8	30
28	Double-Kissing Nanocrush for Bifurcation Lesions: Development, Bioengineering, Fluid Dynamics, and Initial Clinical Testing. Canadian Journal of Cardiology, 2020, 36, 852-859.	0.8	10
29	Optimal Site for Proximal Optimization Technique in Complex Coronary Bifurcation Stenting: A Computational Fluid Dynamics Study. Cardiovascular Revascularization Medicine, 2020, 21, 826-832.	0.3	2
30	First Report of the One-Point Transradial TwoÂSheathless Catheters Insertion (OTRANTO) Technique. JACC: Cardiovascular Interventions, 2020, 13, e9-e10.	1.1	1
31	Does the inflow velocity profile influence physiologically relevant flow patterns in computational hemodynamic models of left anterior descending coronary artery?. Medical Engineering and Physics, 2020, 82, 58-69.	0.8	21
32	3D reconstruction of coronary artery bifurcations from coronary angiography and optical coherence tomography: feasibility, validation, and reproducibility. Scientific Reports, 2020, 10, 18049.	1.6	19
33	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
34	Exploring wall shear stress spatiotemporal heterogeneity in coronary arteries combining correlation-based analysis and complex networks with computational hemodynamics. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 2020, 234, 1209-1222.	1.0	7
35	Application of an OCT-based 3D reconstruction framework to the hemodynamic assessment of an ulcerated coronary artery plaque. Medical Engineering and Physics, 2020, 78, 74-81.	0.8	13
36	The impact of helical flow on coronary atherosclerotic plaque development. Atherosclerosis, 2020, 300, 39-46.	0.4	34

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37	A fully coupled computational fluid dynamics â€“ agent-based model of atherosclerotic plaque development: Multiscale modeling framework and parameter sensitivity analysis. Computers in Biology and Medicine, 2020, 118, 103623.	3.9	37
38	Impact of lower limb movement on the hemodynamics of femoropopliteal arteries: A computational study. Medical Engineering and Physics, 2020, 81, 105-117.	0.8	15
39	Impact of bioresorbable scaffold design characteristics on local haemodynamic forces: an ex vivo assessment with computational fluid dynamics simulations. EuroIntervention, 2020, 16, e930-e937.	1.4	5
40	Fluid-dynamics and biological features of unstable plaques: different shear stress for different plaques. European Heart Journal, 2020, 41, .	1.0	0
41	Does clinical data quality affect fluid-structure interaction simulations of patient-specific stenotic aortic valve models?. Journal of Biomechanics, 2019, 94, 202-210.	0.9	13
42	Coronary Vulnerable Plaque Development Is Promoted By Multidirectional Wall Shear Stress â€“ A Pre-Clinical Imaging Study. Atherosclerosis, 2019, 287, e105.	0.4	0
43	On the Modeling of Patient-Specific Transcatheter Aortic Valve Replacement: A Fluidâ€“Structure Interaction Approach. Cardiovascular Engineering and Technology, 2019, 10, 437-455.	0.7	61
44	Location-Specific Comparison Between a 3D In-Stent Restenosis Model and Micro-CT and Histology Data from Porcine In Vivo Experiments. Cardiovascular Engineering and Technology, 2019, 10, 568-582.	0.7	20
45	Design Rules for Producing Cardiovascular Stents by Selective Laser Melting: Geometrical Constraints and Opportunities. Procedia Structural Integrity, 2019, 15, 16-23.	0.3	30
46	Automatic segmentation of optical coherence tomography pullbacks of coronary arteries treated with bioresorbable vascular scaffolds: Application to hemodynamics modeling. PLoS ONE, 2019, 14, e0213603.	1.1	18
47	P3109Coronary vulnerable plaque development is promoted by multidirectional wall shear stress. European Heart Journal, 2019, 40, .	1.0	0
48	The Atheroprotective Nature of Helical Flow in Coronary Arteries. Annals of Biomedical Engineering, 2019, 47, 425-438.	1.3	58
49	A Multiscale Model of Atherosclerotic Plaque Development: Toward a Coupling Between an Agent-Based Model and CFD Simulations. Lecture Notes in Computer Science, 2019, , 410-423.	1.0	5
50	Patient-Specific Modeling of Stented Coronary Arteries Reconstructed from Optical Coherence Tomography: Towards a Widespread Clinical Use of Fluid Dynamics Analyses. Journal of Cardiovascular Translational Research, 2018, 11, 156-172.	1.1	25
51	Simultaneous kissing stents to treat unprotected left main stem coronary artery bifurcation disease; stent expansion, vessel injury, hemodynamics, tissue healing, restenosis, and repeat revascularization. Catheterization and Cardiovascular Interventions, 2018, 92, E381-E392.	0.7	31
52	Differences in rotational positioning and subsequent distal main branch rewiring of the Tryton stent: An optical coherence tomography and computational study. Catheterization and Cardiovascular Interventions, 2018, 92, 897-906.	0.7	5
53	A Patient-Specific Study Investigating the Relation between Coronary Hemodynamics and Neo-Intimal Thickening after Bifurcation Stenting with a Polymeric Bioresorbable Scaffold. Applied Sciences (Switzerland), 2018, 8, 1510.	1.3	6
54	Biomechanical Impact of Wrong Positioning of a Dedicated Stent for Coronary Bifurcations: A Virtual Bench Testing Study. Cardiovascular Engineering and Technology, 2018, 9, 415-426.	0.7	13

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55	Fluidâ€"Structure Simulation of a Transcatheter Aortic Valve Implantation: Potential Application to Patient-Specific Cases. Lecture Notes in Bioengineering, 2018, , 93-98.	0.3	1
56	Bench testing and coronary artery bifurcations: a consensus document from the European Bifurcation Club. EuroIntervention, 2018, 13, e1794-e1803.	1.4	28
57	Healthy and diseased coronary bifurcation geometries influence near-wall and intravascular flow: A computational exploration of the hemodynamic risk. Journal of Biomechanics, 2017, 58, 79-88.	0.9	57
58	A framework for computational fluid dynamic analyses of patient-specific stented coronary arteries from optical coherence tomography images. Medical Engineering and Physics, 2017, 47, 105-116.	0.8	30
59	Hemodynamics of Stent Implantation Procedures in Coronary Bifurcations: An In Vitro Study. Annals of Biomedical Engineering, 2017, 45, 542-553.	1.3	24
60	Reconstruction of stented coronary arteries from optical coherence tomography images: Feasibility, validation, and repeatability of a segmentation method. PLoS ONE, 2017, 12, e0177495.	1.1	25
61	Impact of plaque type and side branch geometry on side branch compromise after provisional stent implantation: a simulation study. EuroIntervention, 2017, 13, e236-e245.	1.4	13
62	Coronary fractional flow reserve measurements of a stenosed side branch: a computational study investigating the influence of the bifurcation angle. BioMedical Engineering OnLine, 2016, 15, 91.	1.3	22
63	A method for coronary bifurcation centerline reconstruction from angiographic images based on focalization optimization. , 2016, 2016, 4165-4168.		0
64	Computational replication of the patient-specific stenting procedure for coronary artery bifurcations: From OCT and CT imaging to structural and hemodynamics analyses. Journal of Biomechanics, 2016, 49, 2102-2111.	0.9	60
65	Effects of Vessel Tortuosity on Coronary Hemodynamics: An Idealized and Patient-Specific Computational Study. Annals of Biomedical Engineering, 2016, 44, 2228-2239.	1.3	51
66	Fluidâ€"Structure Interaction Model of a Percutaneous Aortic Valve: Comparison with an In Vitro Test and Feasibility Study in a Patient-Specific Case. Annals of Biomedical Engineering, 2016, 44, 590-603.	1.3	66
67	Modeling of Blood Flow in Stented Coronary Arteries. , 2015, , 335-370.		3
68	Biomechanical Modeling to Improve Coronary Artery Bifurcation Stenting. JACC: Cardiovascular Interventions, 2015, 8, 1281-1296.	1.1	84
69	First report on free expansion simulations of a dedicated bifurcation stent mounted on a stepped balloon. EuroIntervention, 2015, 10, e1-e3.	1.4	6
70	Virtual bench testing to study coronary bifurcation stenting. EuroIntervention, 2015, 11, V31-V34.	1.4	25
71	Patient-specific computer modelling of coronary bifurcation stenting: the John Doe programme. EuroIntervention, 2015, 11, V35-V39.	1.4	26
72	On the necessity of modelling fluidâ€"structure interaction for stented coronary arteries. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 34, 217-230.	1.5	61

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73	Stent deformation, physical stress, and drug elution obtained with provisional stenting, conventional culotte and Tryton-based culotte to treat bifurcations: a virtual simulation study. EuroIntervention, 2014, 9, 1441-1453.	1.4	25
74	Drug delivery patterns for different stenting techniques in coronary bifurcations: a comparative computational study. Biomechanics and Modeling in Mechanobiology, 2013, 12, 657-669.	1.4	35
75	Computational fluid dynamic simulations of image-based stented coronary bifurcation models. Journal of the Royal Society Interface, 2013, 10, 20130193.	1.5	104
76	Coronary stenting: From optical coherence tomography to fluid dynamic simulations. , 2013, , .		1
77	Patient-specific simulations of stenting procedures in coronary bifurcations: Two clinical cases. Medical Engineering and Physics, 2013, 35, 1272-1281.	0.8	92
78	Patient-Specific Stented Coronary Bifurcations: Numerical Analysis of Near-Wall Quantities and the Bulk Flow. , 2013, , .		0
79	Simulation of oxygen transfer in stented arteries and correlation with inâ€stent restenosis. International Journal for Numerical Methods in Biomedical Engineering, 2013, 29, 1373-1387.	1.0	29
80	An Immersed Boundary Method for Drug Release Applied to Drug Eluting Stents Dedicated to Arterial Bifurcations. , 2013, , 401-409.		1
81	Computational fluid dynamics of stented coronary bifurcations studied with a hybrid discretization method. European Journal of Mechanics, B/Fluids, 2012, 35, 76-84.	1.2	39
82	Sequential Structural and Fluid Dynamic Numerical Simulations of a Stented Bifurcated Coronary Artery. Journal of Biomechanical Engineering, 2011, 133, 121010.	0.6	60
83	Trends in biomedical engineering: focus on Patient Specific Modeling and Life Support Systems. Journal of Applied Biomaterials and Biomechanics, 2011, 9, 109-117.	0.4	1
84	Numerical Modelling of Stenting Procedures in Coronary Bifurcations: A Structural and Fluid Dynamic Combined Approach. , 2011, , .		0