Matthias Hoelzl

List of Publications by Year
in descending order

96	1,997	236925 25	330143 37
papers	citations	h-index	g-index

96	96	96	1431
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Non-linear magnetohydrodynamic modeling of plasma response to resonant magnetic perturbations. Physics of Plasmas, 2013, 20, .	1.9	99
2	Overview of the JET preparation for deuteriumâ€“tritium operation with the ITER like-wall. Nuclear Fusion, 2019, 59, 112021.	3.5	87
3	The JOREK non-linear extended MHD code and applications to large-scale instabilities and their control in magnetically confined fusion plasmas. Nuclear Fusion, 2021, 61, 065001.	3.5	85
4	Fast-ion losses induced by ELMs and externally applied magnetic perturbations in the ASDEX Upgrade tokamak. Plasma Physics and Controlled Fusion, 2013, 55, 124014.	2.1	65
5	Mechanism of Edge Localized Mode Mitigation by Resonant Magnetic Perturbations. Physical Review Letters, 2014, 113, 115001.	7.8	60
6	Overview of ASDEX Upgrade results. Nuclear Fusion, 2017, 57, 102015.	3.5	53
7	Power load studies in JET and ASDEX-Upgrade with full-W divertors. Plasma Physics and Controlled Fusion, 2013, 55, 124039.	2.1	51
8	Nonlinear excitation of low-n harmonics in reduced magnetohydrodynamic simulations of edge-localized modes. Physics of Plasmas, 2013, 20, .	1.9	48
9	Fast-ion redistribution and loss due to edge perturbations in the ASDEX Upgrade, DIII-D and KSTAR tokamaks. Nuclear Fusion, 2013, 53, 123008.	3.5	47
10	Progress in understanding disruptions triggered by massive gas injection via 3D non-linear MHD modelling with JOREK. Plasma Physics and Controlled Fusion, 2017, 59, 014006.	2.1	47
11	Three-dimensional non-linear magnetohydrodynamic modeling of massive gas injection triggered disruptions in JET. Physics of Plasmas, 2015, 22, .	1.9	45
12	Demonstration of Safe Termination of Megaampere Relativistic Electron Beams in Tokamaks. Physical Review Letters, 2021, 126, 175001.	7.8	41
13	Overview of physics studies on ASDEX Upgrade. Nuclear Fusion, 2019, 59, 112014.	3.5	38
14	Overview of ASDEX Upgrade results. Nuclear Fusion, 2013, 53, 104003.	3.5	36
15	Disruption mitigation by injection of small quantities of noble gas in ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2017, 59, 014046.	2.1	35
16	Dependence on plasma shape and plasma fueling for small edge-localized mode regimes in TCV and ASDEX Upgrade. Nuclear Fusion, 2019, 59, 086020.	3.5	34
17	Coupling JOREK and STARWALL Codes for Non-linear Resistive-wall Simulations. Journal of Physics: Conference Series, 2012, 401, 012010.	0.4	33
18	Nonlinear MHD simulations of Quiescent H-mode plasmas in DIII-D. Nuclear Fusion, 2015, 55, 113002.	3.5	33

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19	Reduced-magnetohydrodynamic simulations of toroidally and poloidally localized edge localized modes. Physics of Plasmas, 2012, 19, .	1.9	30
20	Magnetic flux pumping in 3D nonlinear magnetohydrodynamic simulations. Physics of Plasmas, 2017, 24, .	1.9	29
21	Radiation asymmetry and MHD destabilization during the thermal quench after impurity shattered pellet injection. Nuclear Fusion, 2021, 61, 026015.	3.5	29
22	Resistive Reduced MHD Modeling of Multi-Edge-Localized-Mode Cycles in TokamakX-Point Plasmas. Physical Review Letters, 2015, 114, 035001.	7.8	28
23	Parametric decay instabilities near the second-harmonic upper hybrid resonance in fusion plasmas. Nuclear Fusion, 2020, 60, 106008.	3.5	28
24	Overview of ASDEX Upgrade results. Nuclear Fusion, 2011, 51, 094012.	3.5	27
25	Non-linear extended MHD simulations of type-I edge localised mode cycles in ASDEX Upgrade and their underlying triggering mechanism. Nuclear Fusion, 2020, 60, 124007.	3.5	27
26	Test particles dynamics in the JOREK 3D non-linear MHD code and application to electron transport in a disruption simulation. Nuclear Fusion, 2018, 58, 016043.	3.5	26
27	Simulating the nonlinear interaction of relativistic electrons and tokamak plasma instabilities: Implementation and validation of a fluid model. Physical Review E, 2019, 99, 063317.	2.1	26
28	Non-linear modeling of the threshold between ELM mitigation and ELM suppression by resonant magnetic perturbations in ASDEX upgrade. Physics of Plasmas, 2019, 26, 042503.	1.9	26
29	Non-linear MHD modeling of edge localized mode cycles and mitigation by resonant magnetic perturbations. Plasma Physics and Controlled Fusion, 2015, 57, 014020.	2.1	25
30	Recent progress in the quantitative validation of JOREK simulations of ELMs in JET. Nuclear Fusion, 2017, 57, 076006.	3.5	25
31	Extended full-MHD simulation of non-linear instabilities in tokamak plasmas. Physics of Plasmas, 2020, 27, .	1.9	24
32	Overview of progress in European medium sized tokamaks towards an integrated plasma-edge/wall solution ^a. Nuclear Fusion, 2017, 57, 102014.	3.5	23
33	Nonlinear coupling induced toroidal structure of edge localized modes. Nuclear Fusion, 2018, 58, 026011.	3.5	23
34	Fast plasma dilution in ITER with pure deuterium shattered pellet injection. Nuclear Fusion, 2020, 60, 126040.	3.5	23
35	Numerical modeling of diffusive heat transport across magnetic islands and highly stochastic layers. Physics of Plasmas, 2007, 14, 052501.	1.9	22
36	Edge localized mode rotation and the nonlinear dynamics of filaments. Physics of Plasmas, 2016, 23, 042513.	1.9	22

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37	Electron acceleration in a JET disruption simulation. Nuclear Fusion, 2018, 58, 106022.	3.5	21
38	Magnetohydrodynamic simulations of runaway electron beam termination in JET. Plasma Physics and Controlled Fusion, 2021, 63, 035024.	2.1	21
39	A novel path to runaway electron mitigation via deuterium injection and current-driven MHD instability. Nuclear Fusion, 2021, 61, 116058.	3.5	21
40	Non-linear MHD simulations of ELMs in JET and quantitative comparisons to experiments. Plasma Physics and Controlled Fusion, 2016, 58, 014026.	2.1	20
41	Energy conservation and numerical stability for the reduced MHD models of the non-linear JOREK code. ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 1331-1365.	1.9	19
42	3D simulations of vertical displacement events in tokamaks: A benchmark of M3D-C1, NIMROD, and JOREK. Physics of Plasmas, 2021, 28, .	1.9	19
43	Axisymmetric simulations of vertical displacement events in tokamaks: A benchmark of M3D-C1, NIMROD, and JOREK. Physics of Plasmas, 2020, 27, 022505.	1.9	18
44	Solitary magnetic perturbations at the ELM onset. Nuclear Fusion, 2012, 52, 114025.	3.5	17
45	First predictive simulations for deuterium shattered pellet injection in ASDEX Upgrade. Physics of Plasmas, 2020, 27, 022510.	1.9	17
46	Determination of the heat diffusion anisotropy by comparing measured and simulated electron temperature profiles across magnetic islands. Nuclear Fusion, 2009, 49, 115009.	3.5	16
47	Insights into typeâ€I edge localized modes and edge localized mode control from JOREK nonâ€linear magnetoâ€hydrodynamic simulations. Contributions To Plasma Physics, 2018, 58, 518-528.	1.1	16
48	Nonlinear MHD simulations of QH-mode DIII-D plasmas and implications for ITER highQscenarios. Plasma Physics and Controlled Fusion, 2018, 60, 014039.	2.1	16
49	Beam-Ion Acceleration during Edge Localized Modes in the ASDEX Upgrade Tokamak. Physical Review Letters, 2018, 121, 025002.	7.8	16
50	Non-linear magnetohydrodynamic simulations of edge localised mode triggering via vertical position oscillations in ITER. Nuclear Fusion, 2018, 58, 096018.	3.5	16
51	Non-linear MHD modelling of edge localized modes dynamics in KSTAR. Nuclear Fusion, 2017, 57, 116059.	3.5	16
52	Effects of density gradients and fluctuations at the plasma edge on ECEI measurements at ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2018, 60, 045002.	2.1	15
53	Nonlinear modeling of the effect of nâ€‰â€‰=â€‰â€‰2 resonant magnetic field perturbation on peeling-ballooning modes in KSTAR. Nuclear Fusion, 2020, 60, 026009.	3.5	15
54	Non-axisymmetric MHD simulations of the current quench phase of ITER mitigated disruptions. Nuclear Fusion, 2022, 62, 056023.	3.5	15

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55	Characterization of low-frequency inter-ELM modes of H-mode discharges at ASDEX Upgrade. Nuclear Fusion, 2018, 58, 112011.	3.5	13
56	Understanding the reduction of the edge safety factor during hot VDEs and fast edge cooling events. Physics of Plasmas, 2020, 27, 032501.	1.9	13
57	Thermal quench and current profile relaxation dynamics in massive-material-injection-triggered tokamak disruptions. Plasma Physics and Controlled Fusion, 2021, 63, 115006.	2.1	13
58	Kinetic modeling of ELM-induced tungsten transport in a tokamak plasma. Physics of Plasmas, 2019, 26, .	1.9	12
59	A three-dimensional reduced MHD model consistent with full MHD. Physics of Plasmas, 2019, 26, .	1.9	12
60	The development of an implicit full f method for electromagnetic particle simulations of AlfvÃ©n waves and energetic particle physics. Journal of Computational Physics, 2021, 440, 110384.	3.8	12
61	Overview of ASDEX Upgrade results. Nuclear Fusion, 2009, 49, 104009.	3.5	11
62	Simulations of COMPASS vertical displacement events with a self-consistent model for halo currents including neutrals and sheath boundary conditions. Plasma Physics and Controlled Fusion, 2021, 63, 064004.	2.1	11
63	Recent progress in modeling ICRF-edge plasma interactions with application to ASDEX Upgrade. Nuclear Fusion, 0, , .	3.5	11
64	A wall-aligned grid generator for non-linear simulations of MHD instabilities in tokamak plasmas. Computer Physics Communications, 2019, 243, 41-50.	7.5	10
65	MHD simulations of small ELMs at low triangularity in ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2022, 64, 054011.	2.1	10
66	Heat diffusion across magnetic islands and ergodized plasma regions in realistic tokamak geometry. Physics of Plasmas, 2008, 15, .	1.9	9
67	Non-linear magnetohydrodynamic simulations of pellet triggered edge-localized modes in JET. Nuclear Fusion, 2020, 60, 026003.	3.5	9
68	Interaction between filaments and ICRF in the plasma edge. Nuclear Materials and Energy, 2021, 26, 100941.	1.3	9
69	Confinement of passing and trapped runaway electrons in the simulation of an ITER current quench. Nuclear Fusion, 2022, 62, 086033.	3.5	9
70	Development and testing of an unstructured mesh method for whole plasma gyrokinetic simulations in realistic tokamak geometry. Physics of Plasmas, 2019, 26, 122503.	1.9	8
71	Dynamics of ideal modes and subsequent ELM crashes in 3D tokamak geometry from external magnetic perturbations. Plasma Physics and Controlled Fusion, 2019, 61, 014019.	2.1	8
72	Simulations of edge localised mode instabilities in MAST-U Super-X tokamak plasmas. Nuclear Fusion, 2020, 60, 066021.	3.5	8

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73	Electromagnetic thin-wall model for simulations of plasma wall-touching kink and vertical modes. Journal of Plasma Physics, 2015, 81, .	2.1	7
74	Comparing spontaneous and pellet-triggered ELMs via non-linear extended MHD simulations. Plasma Physics and Controlled Fusion, 2021, 63, 075016.	2.1	7
75	Physics of runaway electrons with shattered pellet injection at JET. Plasma Physics and Controlled Fusion, 2022, 64, 034002.	2.1	7
76	ELM-induced cold pulse propagation in ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2019, 61, 045003.	2.1	6
77	Modeling of TAE mode excitation with an antenna in realistic X-point geometry. Physics of Plasmas, 2020, 27, 012507.	1.9	6
78	Experimental study of ELM induced fast-ion transport using passive FIDA spectroscopy at the ASDEX Upgrade tokamak. Nuclear Fusion, 2021, 61, 046001.	3.5	6
79	Non-linear Simulations of MHD Instabilities in Tokamaks Including Eddy Current Effects and Perspectives for the Extension to Halo Currents. Journal of Physics: Conference Series, 2014, 561, 012011.	0.4	5
80	Transition from no-ELM response to pellet ELM triggering during pedestal build-upâ€"insights from extended MHD simulations. Nuclear Fusion, 2021, 61, 046043.	3.5	5
81	Testing of the new JOREK stellarator-capable model in the tokamak limit. Journal of Plasma Physics, 2021, 87, .	2.1	5
82	Collisional-radiative non-equilibrium impurity treatment for JOREK simulations. Plasma Physics and Controlled Fusion, 2021, 63, 125003.	2.1	5
83	Scaling of the toroidal structure and nonlinear dynamics of ELMs on ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2018, 60, 125011.	2.1	4
84	Numerical study of tearing mode seeding in tokamak X-point plasma. Physics of Plasmas, 2019, 26, .	1.9	4
85	A generalised formulation of G-continuous Bezier elements applied to non-linear MHD simulations. Journal of Computational Physics, 2022, 464, 111101.	3.8	4
86	JOREK3D: An extension of the JOREK nonlinear MHD code to stellarators. Physics of Plasmas, 2022, 29, .	1.9	4
87	Nonlinear MHD simulations of external kinks in quasi-axisymmetric stellarators using an axisymmetric external rotational transform approximation. Nuclear Fusion, 2021, 61, 076017.	3.5	3
88	Enhanced preconditioner for JOREK MHD solver. Plasma Physics and Controlled Fusion, 2021, 63, 114002.	2.1	3
89	Scattering of ion cyclotron range of frequency waves by filaments and ELMs. Nuclear Fusion, 2020, 60, 096001.	3.5	3
90	A simulation chain for reflectometry and non-linear MHD: type-I ELM case. Journal of Instrumentation, 2021, 16, C12024.	1.2	3

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91	Simulation of surface currents excited by plasma Wall-Touching Kink and vertical modes in tokamak. , 2016, , .		2
92	Simulation of the electromagnetic wall response during Vertical Displacement Events (VDE) in ITER tokamak. Journal of Physics: Conference Series, 2018, 1141, 012065.	0.4	2
93	A mathematical model for calculation of the influence of ferromagnetic components in Vertical Displacement Events and stability simulations of tokamak plasmas. Journal of Physics: Conference Series, 2021, 1730, 012115.	0.4	1
94	An E and B gyrokinetic simulation model for kinetic AlfvÃ©n waves in tokamak plasmas. Physics of Plasmas, 2022, 29, 022502.	1.9	1
95	On the role of preexisting MHD activity for the plasma response to massive deuterium injection. Physics of Plasmas, 2022, 29, 032509.	1.9	1
96	Modeling of saturated external MHD instabilities in tokamaks: A comparison of 3D free boundary equilibria and nonlinear stability calculations. Physics of Plasmas, 2022, 29, 072303.	1.9	1