

Federico Felici

List of Publications by Year in descending order

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Version: 2024-02-01

108
papers

2,362
citations

236925

25
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243625

44
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108
all docs

108
docs citations

108
times ranked

1526
citing authors

#	ARTICLE	IF	CITATIONS
1	Magnetic control of tokamak plasmas through deep reinforcement learning. <i>Nature</i> , 2022, 602, 414-419.	27.8	244
2	Subspace identification of MIMO LPV systems using a periodic scheduling sequence. <i>Automatica</i> , 2007, 43, 1684-1697.	5.0	139
3	Real-time physics-model-based simulation of the current density profile in tokamak plasmas. <i>Nuclear Fusion</i> , 2011, 51, 083052.	3.5	109
4	Snowflake divertor plasmas on TCV. <i>Plasma Physics and Controlled Fusion</i> , 2009, 51, 055009.	2.1	97
5	Tokamak equilibrium reconstruction code LIUQE and its real time implementation. <i>Fusion Engineering and Design</i> , 2015, 91, 1-15.	1.9	91
6	Non-linear model-based optimization of actuator trajectories for tokamak plasma profile control. <i>Plasma Physics and Controlled Fusion</i> , 2012, 54, 025002.	2.1	65
7	Sawtooth Pacing by Real-Time Auxiliary Power Control in a Tokamak Plasma. <i>Physical Review Letters</i> , 2011, 106, 245002.	7.8	58
8	RABBIT: Real-time simulation of the NBI fast-ion distribution. <i>Nuclear Fusion</i> , 2018, 58, 082032.	3.5	58
9	Fast modeling of turbulent transport in fusion plasmas using neural networks. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	58
10	Real-time capable first principle based modelling of tokamak turbulent transport. <i>Nuclear Fusion</i> , 2015, 55, 092001.	3.5	53
11	Overview of the TCV tokamak program: scientific progress and facility upgrades. <i>Nuclear Fusion</i> , 2017, 57, 102011.	3.5	52
12	Integrated real-time control of MHD instabilities using multi-beam ECRH/ECCD systems on TCV. <i>Nuclear Fusion</i> , 2012, 52, 074001.	3.5	51
13	TORBEAM 2.0, a paraxial beam tracing code for electron-cyclotron beams in fusion plasmas for extended physics applications. <i>Computer Physics Communications</i> , 2018, 225, 36-46.	7.5	51
14	Novel aspects of plasma control in ITER. <i>Physics of Plasmas</i> , 2015, 22, 021806.	1.9	45
15	Control of the tokamak safety factor profile with time-varying constraints using MPC. <i>Nuclear Fusion</i> , 2015, 55, 023001.	3.5	43
16	Physics research on the TCV tokamak facility: from conventional to alternative scenarios and beyond. <i>Nuclear Fusion</i> , 2019, 59, 112023.	3.5	43
17	Real-time-capable prediction of temperature and density profiles in a tokamak using RAPTOR and a first-principle-based transport model. <i>Nuclear Fusion</i> , 2018, 58, 096006.	3.5	41
18	Closed-loop identification of the time-varying dynamics of variable-speed wind turbines. <i>International Journal of Robust and Nonlinear Control</i> , 2009, 19, 4-21.	3.7	38

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19	Overview of physics studies on ASDEX Upgrade. Nuclear Fusion, 2019, 59, 112014.	3.5	38
20	DEMO diagnostics and burn control. Fusion Engineering and Design, 2015, 96-97, 8-15.	1.9	35
21	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
22	Feedback controlled, reactor relevant, high-density, high-confinement scenarios at ASDEX Upgrade. Nuclear Fusion, 2018, 58, 036001.	3.5	32
23	Demonstration of sawtooth period locking with power modulation in TCV plasmas. Nuclear Fusion, 2012, 52, 062002.	3.5	31
24	Overview of the TCV tokamak experimental programme. Nuclear Fusion, 2022, 62, 042018.	3.5	30
25	Edge-localized mode control by electron cyclotron waves in a tokamak plasma. Nuclear Fusion, 2012, 52, 032004.	3.5	28
26	Profile control simulations and experiments on TCV: a controller test environment and results using a model-based predictive controller. Nuclear Fusion, 2017, 57, 126063.	3.5	28
27	Real-time feedback control of the impurity emission front in tokamak divertor plasmas. Nature Communications, 2021, 12, 1105.	12.8	28
28	Fast seeding of NTMs by sawtooth crashes in TCV and their preemption using ECRH. Nuclear Fusion, 2013, 53, 113026.	3.5	25
29	Development of real-time plasma analysis and control algorithms for the TCV tokamak using Simulink. Fusion Engineering and Design, 2014, 89, 165-176.	1.9	24
30	Real time control of the sawtooth period using EC launchers. Plasma Physics and Controlled Fusion, 2009, 51, 055010.	2.1	23
31	Overview of the preliminary design of the ITER plasma control system. Nuclear Fusion, 2017, 57, 125001.	3.5	23
32	Control-oriented modeling of the plasma particle density in tokamaks and application to real-time density profile reconstruction. Fusion Engineering and Design, 2018, 126, 87-103.	1.9	23
33	Density control in ITER: an iterative learning control and robust control approach. Nuclear Fusion, 2018, 58, 016048.	3.5	23
34	From profile to sawtooth control: developing feedback control using ECRH/ECCD systems on the TCV tokamak. Plasma Physics and Controlled Fusion, 2009, 51, 124041.	2.1	21
35	Simulation of profile evolution from ramp-up to ramp-down and optimization of tokamak plasma termination with the RAPTOR code. Plasma Physics and Controlled Fusion, 2017, 59, 124004.	2.1	20
36	Experimental validation of a Lyapunov-based controller for the plasma safety factor and plasma pressure in the TCV tokamak. Nuclear Fusion, 2018, 58, 056011.	3.5	20

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37	Development and validation of a tokamak skin effect transformer model. Nuclear Fusion, 2012, 52, 023019.	3.5	19
38	Distributed digital real-time control system for TCV tokamak. Fusion Engineering and Design, 2014, 89, 155-164.	1.9	19
39	First demonstration of real-time kinetic equilibrium reconstruction on TCV by coupling LIUQE and RAPTOR. Nuclear Fusion, 2020, 60, 066020.	3.5	18
40	A novel plasma position and shape controller for advanced configuration development on the TCV tokamak. Nuclear Fusion, 2017, 57, 126026.	3.5	16
41	Model-based real-time plasma electron density profile estimation and control on ASDEX Upgrade and TCV. Fusion Engineering and Design, 2019, 147, 111211.	1.9	16
42	Real-time feedback control of millimeter-wave polarization for LHD. Review of Scientific Instruments, 2009, 80, 013504.	1.3	15
43	Actuator allocation for integrated control in tokamaks: architectural design and a mixed-integer programming algorithm. Fusion Engineering and Design, 2017, 122, 94-112.	1.9	15
44	Control of neoclassical tearing modes and integrated multi-actuator plasma control on TCV. Nuclear Fusion, 2019, 59, 076035.	3.5	15
45	New capabilities of the incoherent Thomson scattering diagnostics in the TCV tokamak: divertor and real-time measurements. Journal of Instrumentation, 2019, 14, C09013-C09013.	1.2	15
46	Progress on the ITER Upper Launcher Millimeter-Wave Design and Testing. Fusion Science and Technology, 2009, 55, 84-93.	1.1	14
47	Observer-based real-time control for the poloidal beta of the plasma using diamagnetic measurements in tokamak fusion reactors. , 2011, , .		14
48	Distributed digital real-time control system for the TCV tokamak and its applications. Nuclear Fusion, 2017, 57, 056005.	3.5	14
49	Real time control of plasmas and ECRH systems on TCV. Nuclear Fusion, 2009, 49, 085017.	3.5	13
50	Architecture and commissioning of the TCV distributed feedback control system. , 2010, , .		13
51	Real-time control of the period of individual ELMs by EC power on TCV. Nuclear Fusion, 2013, 53, 113018.	3.5	13
52	Real-time plasma state monitoring and supervisory control on TCV. Nuclear Fusion, 2019, 59, 026017.	3.5	13
53	Classification of tokamak plasma confinement states with convolutional recurrent neural networks. Nuclear Fusion, 2020, 60, 036022.	3.5	13
54	Subspace identification of MIMO LPV systems using a piecewise constant scheduling sequence with hard/soft switching. , 2007, , .		12

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55	Handling Technology of Mega-Watt Millimeter-Waves For Optimized Heating of Fusion Plasmas. Journal of Microwave Power and Electromagnetic Energy, 2008, 43, 60-70.	0.8	12
56	Numerical optimization of actuator trajectories for ITER hybrid scenario profile evolution. Plasma Physics and Controlled Fusion, 2014, 56, 125008.	2.1	12
57	A dynamic state observer for real-time reconstruction of the tokamak plasma profile state and disturbances. , 2014, , .		12
58	Plasma internal profile control using IDA-PBC: Application to TCV. Fusion Engineering and Design, 2017, 123, 624-627.	1.9	12
59	Tokamak-agnostic actuator management for multi-task integrated control with application to TCV and ITER. Fusion Engineering and Design, 2019, 147, 111260.	1.9	12
60	A mimetic spectral element solver for the Gradâ€™Shafranov equation. Journal of Computational Physics, 2016, 316, 63-93.	3.8	11
61	Plasma q-profile control in tokamaks using a damping assignment passivity-based approach. Control Engineering Practice, 2016, 54, 34-45.	5.5	11
62	Experiments on actuator management and integrated control at ASDEX Upgrade. Fusion Engineering and Design, 2017, 123, 603-606.	1.9	11
63	Correcting for non-periodic behaviour in perturbative experiments: application to heat pulse propagation and modulated gas-puff experiments. Plasma Physics and Controlled Fusion, 2020, 62, 094001.	2.1	11
64	Rapid optimization of stationary tokamak plasmas in RAPTOR: demonstration for the ITER hybrid scenario with neural network surrogate transport model QLKNN. Nuclear Fusion, 2021, 61, 086019.	3.5	10
65	Enhancing current density profile control in tokamak experiments using iterative learning control. , 2015, , .		9
66	Preparing the Plasma Control System final design for ITER first plasma operations. Fusion Engineering and Design, 2018, 129, 334-340.	1.9	9
67	On benchmarking of simulations of particle transport in ITER. Nuclear Fusion, 2019, 59, 076026.	3.5	9
68	Feedback control of ECRH polarization on LHD. Nuclear Fusion, 2010, 50, 105003.	3.5	8
69	Fast polarizers installation for ECRH and ECE in TCV. Fusion Engineering and Design, 2011, 86, 1256-1259.	1.9	7
70	Real-time control of multiple MHD instabilities on TCV by ECRH/ECCD. EPJ Web of Conferences, 2012, 32, 02005.	0.3	7
71	Kalman filter density reconstruction in ICRH discharges on ASDEX Upgrade. Fusion Engineering and Design, 2021, 170, 112510.	1.9	7
72	Simultaneous closed-loop control of the current profile and the electron temperature profile in the TCV tokamak. , 2015, , .		6

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73	Integration of the state observer RAPTOR in the real-time MARTe framework at RFX-mod. Fusion Engineering and Design, 2017, 123, 616-619.	1.9	6
74	Integrated Real-Time Supervisory Management for Off-Normal-Event Handling and Feedback Control of Tokamak Plasmas. IEEE Transactions on Nuclear Science, 2021, 68, 1855-1861.	2.0	6
75	PROGRESS ON THE ITER UPPER LAUNCHER MILLIMETER WAVE DESIGN AND TESTING. , 2009, , .		6
76	Healing plasma current ramp-up by nitrogen seeding in the full tungsten environment of WEST. Plasma Physics and Controlled Fusion, 2022, 64, 045016.	2.1	6
77	Sliding mode control of a tokamak transformer. , 2012, , .		5
78	IDA-PBC control for the coupled plasma poloidal magnetic flux and heat radial diffusion equations in tokamaks. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 11398-11403.	0.4	5
79	Parameter estimation for a nonlinear control-oriented tokamak profile evolution model. Plasma Physics and Controlled Fusion, 2015, 57, 125008.	2.1	5
80	Design status of the ITER ECRH upper launcher mm-wave system. Fusion Engineering and Design, 2009, 84, 1151-1155.	1.9	4
81	Progress on the ITER H&CD EC Upper Launcher Steering-Mirror Control System. IEEE Transactions on Plasma Science, 2010, 38, 441-447.	1.3	4
82	Real time magnetic control of the snowflake plasma configuration in the TCV tokamak. Nuclear Fusion, 2019, 59, 126032.	3.5	4
83	Developments on actuator management, plasma state reconstruction, and control on ASDEX Upgrade. Fusion Engineering and Design, 2021, 171, 112563.	1.9	4
84	Using APCS for Plasma Vertical Control at TCV. IEEE Transactions on Nuclear Science, 2011, 58, 1570-1575.	2.0	3
85	Model Predictive Control of the Current Density Distribution and Stored Energy in Tokamak Fusion Experiments using Trajectory Linearizations**This work has been carried out within the framework of the EUROfusion Consortium and has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 633053. The views and opinions expressed herein do not necessarily reflect those of the European Commission. IFAC Papers Online, 2015, 48, 214-221.	0.9	3
86	Modeling, observer design and robust control of the particle density profile in tokamak plasmas. , 2015, , .		3
87	A model-based, multichannel, real-time capable sawtooth crash detector. Plasma Physics and Controlled Fusion, 2016, 58, 075002.	2.1	3
88	Modeling of neoclassical tearing mode stabilization by electron cyclotron heating and current drive in tokamak plasmas. Current Applied Physics, 2016, 16, 867-875.	2.4	3
89	Use of virtual actuators in ASDEX Upgrade control. Fusion Engineering and Design, 2020, 159, 111735.	1.9	3
90	On the triggerless onset of 2/1 neoclassical tearing modes in TCV. Nuclear Fusion, 2020, 60, 026002.	3.5	3

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91	Preliminary evaluation of the LIUQE code reconstruction performance for the DTT device. Fusion Engineering and Design, 2021, 167, 112326.	1.9	3
92	Polarization Issues with High Power Injection & Low Power Emission in Fusion Experiments. , 2009, , .		2
93	Progress on the ITER ECRH upper launcher steering mirror identification and control. Fusion Engineering and Design, 2009, 84, 618-622.	1.9	2
94	Individual Sawtooth Pacing by Synchronized ECCD in TCV. AIP Conference Proceedings, 2011, , .	0.4	2
95	Multiple electron cyclotron power deposition location tracking by break-in-slope analysis in TCV plasmas. Plasma Physics and Controlled Fusion, 2011, 53, 115005.	2.1	2
96	Closed-loop control of the safety factor profile in the TCV tokamak. , 2014, , .		2
97	Real-time multi-EC-actuator MHD control on TCV. , 2014, , .		2
98	Optimal MSE polarisation angle and q-profile estimation using Kalman filters and the plasma simulator RAPTOR. Plasma Physics and Controlled Fusion, 2019, 61, 035011.	2.1	2
99	Improved Plasma Vertical Position Control on TCV Using Model-Based Optimized Controller Synthesis. Fusion Science and Technology, 2022, 78, 427-448.	1.1	2
100	Activities on Realization of High-Power and Steady-State ECRH System and Achievement of High Performance Plasmas in LHD. , 2009, , .		1
101	Development of the RAPTOR suite of codes towards real-time reconstruction of JET discharges. Fusion Engineering and Design, 2021, 169, 112431.	1.9	1
102	Closed-loop LPV identification of the time-varying dynamics of a variable-speed wind turbine. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 8866-8871.	0.4	0
103	Simultaneous Power Deposition Detection of Two EC Beams with the BIS Analysis in Moving TCV Plasmas. , 2009, , .		0
104	Progress on the ITER electron cyclotron heating and current drive upper launcher steering mirror control system. , 2009, , .		0
105	Millimeter wave system upgrades on TCV: Additional X3 power and fast ECE polarizers. , 2011, , .		0
106	A new mechanism for sawtooth period control. EPJ Web of Conferences, 2012, 32, 02008.	0.3	0
107	Selected highlights of ECH/ECCD physics studies in the TCV tokamak. EPJ Web of Conferences, 2015, 87, 02002.	0.3	0
108	OBLIQUE AND CORRELATION ECE IN TCV. , 2011, , .		0