Philippe Mertens

List of Publications by Year
in descending order

102	2,001	236925 25	289244 40
papers	citations	h-index	g-index

103	103	103	1557
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Diagnostic mirrors for ITER: A material choice and the impact of erosion and deposition on their performance. Journal of Nuclear Materials, 2007, 363-365, 1395-1402.	2.7	94
2	Characterization of the deuterium recycling flux in front of a graphite surface in the TEXTOR tokamak. Plasma Physics and Controlled Fusion, 2005, 47, 615-634.	2.1	87
3	ELM-induced transient tungsten melting in the JET divertor. Nuclear Fusion, 2015, 55, 023010.	3.5	83
4	Technical challenges in the construction of the steady-state stellarator Wendelstein 7-X. Nuclear Fusion, 2013, 53, 126001.	3.5	77
5	Impact of the ITER-like wall on divertor detachment and on the density limit in the JET tokamak. Journal of Nuclear Materials, 2013, 438, S139-S147.	2.7	76
6	Overview of the JET ITER-like Wall Project. Fusion Engineering and Design, 2010, 85, 1581-1586.	1.9	67
7	R&D on full tungsten divertor and beryllium wall for JET ITER-like wall project. Fusion Engineering and Design, 2007, 82, 1839-1845.	1.9	66
8	Investigation of the impact of transient heat loads applied by laser irradiation on ITER-grade tungsten. Physica Scripta, 2014, T159, 014005.	2.5	65
9	Development of laser-based diagnostics for surface characterisation of wall components in fusion devices. Fusion Engineering and Design, 2011, 86, 1336-1340.	1.9	64
10	First operation with the JET International Thermonuclear Experimental Reactor-like wall. Physics of Plasmas, 2013, 20, .	1.9	56
11	ELM induced tungsten melting and its impact on tokamak operation. Journal of Nuclear Materials, 2015, 463, 78-84.	2.7	53
12	Experience with bulk tungsten test-limiters under high heat loads: melting and melt layer propagation. Physica Scripta, 2007, T128, 81-86.	2.5	51
13	Development of a mirror-based endoscope for divertor spectroscopy on JET with the new ITER-like wall (invited). Review of Scientific Instruments, 2012, 83, 10D511.	1.3	49
14	Current status of the JET ITER-like Wall Project. Physica Scripta, 2009, T138, 014030.	2.5	42
15	Diagnostic mirrors for ITER: research in the frame of International Tokamak Physics Activity. Nuclear Fusion, 2019, 59, 066029.	3.5	41
16	Erosion of a tungsten limiter under high heat flux in TEXTOR. Journal of Nuclear Materials, 2007, 363-365, 96-100.	2.7	38
17	On the measurement of molecular particle fluxes in fusion boundary plasmas. Journal of Nuclear Materials, 2003, 313-316, 967-971.	2.7	36
18	Hydrogen release from plasma-facing components into fusion plasmas - recent results from a spectroscopic approach. Plasma Physics and Controlled Fusion, 2001, 43, A349-A373.	2.1	35

#	Article	IF	Citations
19	Operational limits for the ITER-like wall in JET. Physica Scripta, 2009, T138, 014033.	2.5	33
20	Application of laser-induced breakdown spectroscopy for characterization of material deposits and tritium retention in fusion devices. Fusion Engineering and Design, 2013, 88, 1813-1817.	1.9	31
21	Overview of experimental preparation for the ITER-Like Wall at JET. Journal of Nuclear Materials, 2011, 415, S936-S942.	2.7	29
22	Radial and spectral profiles of atomic deuterium in front of a limiter in TEXTOR 94: Results of laser-induced fluorescence at Lyman-Î±. Journal of Nuclear Materials, 1999, 266-269, 884-889.	2.7	28
23	A bulk tungsten divertor row for the outer strike point in JET. Fusion Engineering and Design, 2009, 84, 1289-1293.	1.9	28
24	Theoretical investigation of crack formation in tungsten after heat loads. Journal of Nuclear Materials, 2015, 463, 246-249.	2.7	28
25	Improved radiation measurements on JET â€“ First results from an upgraded bolometer system. Journal of Nuclear Materials, 2007, 363-365, 365-370.	2.7	27
26	Calculation of cracking under pulsed heat loads in tungsten manufactured according to ITER specifications. Journal of Nuclear Materials, 2015, 467, 165-171.	2.7	24
27	Oxygen ion impurity in the TEXTOR tokamak boundary plasma observed and analysed by Zeeman spectroscopy. Journal of Physics B: Atomic, Molecular and Optical Physics, 2002, 35, 1525-1553.	1.5	23
28	Clamping of solid tungsten components for the bulk W divertor row in JETâ€”precautionary design for a brittle material. Physica Scripta, 2009, T138, 014032.	2.5	23
29	Investigation of the Impact on Tungsten of Transient Heat Loads Induced by Laser Irradiation, Electron Beams and Plasma Guns. Fusion Science and Technology, 2013, 63, 197-200.	1.1	23
30	Development and qualification of a bulk tungsten divertor row for JET. Journal of Nuclear Materials, 2009, 390-391, 967-970.	2.7	22
31	Power handling of the JET ITER-like wall. Physica Scripta, 2014, T159, 014009.	2.5	22
32	Detailed design of a solid tungsten divertor row for JET in relation to the physics goals. Physica Scripta, 2011, T145, 014002.	2.5	20
33	Development and testing of a bulk tungsten tile for the JET divertor. Physica Scripta, 2007, T128, 144-149.	2.5	19
34	First direct comparative test of single crystal rhodium and molybdenum mirrors for ITER diagnostics. Fusion Engineering and Design, 2017, 123, 674-677.	1.9	17
35	Power handling of a segmented bulk W tile for JET under realistic plasma scenarios. Journal of Nuclear Materials, 2011, 415, S943-S947.	2.7	16
36	Combined impact of transient heat loads and steady-state plasma exposure on tungsten. Fusion Engineering and Design, 2015, 98-99, 1328-1332.	1.9	16

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37	Determination of tungsten sources in the JET-ILW divertor by spectroscopic imaging in the presence of a strong plasma continuum. Nuclear Materials and Energy, 2019, 18, 118-124.	1.3	16
38	Optical Coatings as Mirrors for Optical Diagnostics. Journal of Coating Science and Technology, 2016, 2, 72-78.	0.3	16
39	Tomographic reconstruction of 2D line radiation distribution in the JET MkIIGB divertor. Journal of Nuclear Materials, 2003, 313-316, 925-930.	2.7	15
40	Detailed electromagnetic analysis for design optimization of a tungsten divertor plate for JET. Fusion Engineering and Design, 2007, 82, 1825-1832.	1.9	15
41	Bulk tungsten in the JET divertor: Potential influence of the exhaustion of ductility and grain growth on the lifetime. Journal of Nuclear Materials, 2013, 438, S401-S405.	2.7	15
42	Approaches to Analyze Structural Issues of the European DEMO Toroidal Field Coil System at an Early Design Stage. IEEE Transactions on Applied Superconductivity, 2016, 26, 1-5.	1.7	15
43	Molecular deuterium sources in the outer divertor of JET. Journal of Nuclear Materials, 2005, 337-339, 500-504.	2.7	14
44	Thermal analysis of an exposed tungsten edge in the JET divertor. Journal of Nuclear Materials, 2015, 463, 415-419.	2.7	14
45	Real-time protection of the JET ITER-like wall based on near infrared imaging diagnostic systems. Nuclear Fusion, 2018, 58, 106021.	3.5	14
46	Conceptual design for a bulk tungsten divertor tile in JET. Fusion Engineering and Design, 2007, 82, 1833-1838.	1.9	13
47	Movement of liquid beryllium during melt events in JET with ITER-like wall. Physica Scripta, 2014, T159, 014041.	2.5	13
48	Analysis and removal of ITER relevant materials and deposits by laser ablation. Journal of Nuclear Materials, 2014, 455, 180-184.	2.7	13
49	Comparative H-mode density limit studies in JET and AUG. Nuclear Materials and Energy, 2017, 12, 100-110.	1.3	13
50	In situ measurements of the spectral reflectance of metallic mirrors at the H Î± line in a low density Arâ€“H plasma. Review of Scientific Instruments, 2018, 89, 063112.	1.3	12
51	A new radiation-hard endoscope for divertor spectroscopy on JET. Fusion Engineering and Design, 2013, 88, 1361-1365.	1.9	11
52	The Core-Plasma CXRS Diagnostic for ITER: An Introduction to the Current Design. Journal of Fusion Energy, 2019, 38, 264-282.	1.2	11
53	Studies of protection and recovery techniques of diagnostic mirrors for ITER. Nuclear Fusion, 2015, 55, 093015.	3.5	10
54	Density limit of H-mode plasmas on JET-ILW. Journal of Nuclear Materials, 2015, 463, 445-449.	2.7	10

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55	JUVIL: A new innovative software framework for data analysis of JET imaging systems intended for the study of plasma physics and machine operational safety. Fusion Engineering and Design, 2017, 123, 979-985.	1.9	10
56	Peculiarity of highly radiating multi-impurity seeded H-mode plasmas on JET with ITER-like wall. Physica Scripta, 2020, T171, 014055.	2.5	10
57	Numerical simulation of the temperature response of the JET Bulk-W Divertor Row on pulsed heat loading. Fusion Engineering and Design, 2009, 84, 853-858.	1.9	9
58	Geometry and expected performance of the solid tungsten outer divertor row in JET. Fusion Engineering and Design, 2010, 85, 153-160.	1.9	9
59	A bulk tungsten tile for JET: Heat flux tests in the MARION facility on the power-handling performance and validation of the thermal model. Fusion Engineering and Design, 2011, 86, 1801-1804.	1.9	9
60	Status of the R&D activities to the design of an ITER core CXRS diagnostic system. Fusion Engineering and Design, 2015, 96-97, 129-135.	1.9	9
61	In-vessel calibration of the imaging diagnostics for the real-time protection of the JET ITER-like wall. Review of Scientific Instruments, 2016, 87, 11D430.	1.3	9
62	Impact on the deuterium retention of simultaneous exposure of tungsten to a steady state plasma and transient heat cycling loads. Physica Scripta, 2016, T167, 014046.	2.5	9
63	The effect of the isotope on the H-mode density limit. Nuclear Fusion, 2017, 57, 086007.	3.5	9
64	Response of the imaging cameras to hard radiation during JET operation. Fusion Engineering and Design, 2017, 123, 669-673.	1.9	9
65	The software and hardware architecture of the real-time protection of in-vessel components in JET-ILW. Nuclear Fusion, 2019, 59, 076016.	3.5	9
66	Molecular deuterium behaviour in tungsten divertor on JET. Journal of Nuclear Materials, 2013, 438, S1100-S1103.	2.7	8
67	Mechanical pre-dimensioning and pre-optimization of the tokamaksâ€™ toroidal coils featuring the winding pack layout. Fusion Engineering and Design, 2017, 124, 77-81.	1.9	8
68	The near infrared imaging system for the real-time protection of the JET ITER-like wall. Physica Scripta, 2017, T170, 014027.	2.5	8
69	Conceptual studies on spectroscopy and radiation diagnostic systems for plasma control on DEMO. Fusion Engineering and Design, 2019, 146, 2297-2301.	1.9	8
70	Deuterium retention in tungsten under combined high cycle ELM-like heat loads and steady-state plasma exposure. Nuclear Materials and Energy, 2016, 9, 157-164.	1.3	7
71	On the use of rhodium mirrors for optical diagnostics in ITER. Fusion Engineering and Design, 2019, 146, 2514-2518.	1.9	7
72	Erosion and screening of tungsten during inter/intra-ELM periods in the JET-ILW divertor. Nuclear Materials and Energy, 2020, 25, 100859.	1.3	7

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73	Removable samples for ITERâ€"a feasibility and conceptual study. Physica Scripta, 2014, T159, 014004.	2.5	6
74	Design overview of the ITER core CXRS fast shutter and manufacturing implications during the detailed design work. Fusion Engineering and Design, 2015, 96-97, 746-750.	1.9	6
75	Mirror Station for studies of the protection of diagnostic mirrors from impurity contamination in ITER: Design and first results. Fusion Engineering and Design, 2015, 96-97, 290-293.	1.9	6
76	Understanding tungsten erosion during inter/intra-ELM periods in He-dominated JET-ILW plasmas. Physica Scripta, 0, , .	2.5	6
77	Upgrade of the material ion beam test facility MARION for enhanced requirements of JET and ITER. Fusion Engineering and Design, 2011, 86, 2791-2794.	1.9	5
78	Testing of a SiO2/TiO2 mirror coating on a stainless steel substrate under ITER in-port conditions. Fusion Engineering and Design, 2015, 96-97, 817-820.	1.9	5
79	Major aspects of the design of a first mirror for the ITER core CXRS diagnostics. Fusion Engineering and Design, 2015, 96-97, 812-816.	1.9	5
80	TFC-PREDIM: A FE dimensioning procedure for the TF coil system of a DEMO tokamak reactor. Fusion Engineering and Design, 2020, 159, 111948.	1.9	5
81	Optical isolation of spectral lines emitted by sputtered tungsten in a weakly magnetized plasma. Journal of Physics B: Atomic, Molecular and Optical Physics, 2020, 54, 025401.	1.5	5
82	Applying multi-physics requirements and loads in FEM analysis and testingâ€"The JET KL11 endoscope design verification process. Fusion Engineering and Design, 2013, 88, 1428-1432.	1.9	4
83	Dynamic performance of frictionless fast shutters for ITER: Numerical and analytical sensitivity study for the development of a test program. Fusion Engineering and Design, 2015, 96-97, 903-906.	1.9	4
84	Specific design and structural issues of single crystalline first mirrors for diagnostics. Fusion Engineering and Design, 2017, 124, 548-552.	1.9	4
85	Polarization by light reflection at metallic surfaces observed in the shape of the Balmer-Î± line of low density plasmas. Physics of Plasmas, 2019, 26, 073513.	1.9	4
86	Detailed structural analysis of a graded TF coil winding pack for EU DEMO. Fusion Engineering and Design, 2019, 146, 535-538.	1.9	4
87	Preliminary study of a visible, high spatial resolution spectrometer for DEMO divertor survey. Journal of Instrumentation, 2020, 15, C01008-C01008.	1.2	4
88	Engineering aspects of a fully mirrored endoscope. Fusion Engineering and Design, 2013, 88, 1400-1404.	1.9	3
89	Aim and features of the simplified parametric mock-up of a fast shutter developed for ITER optical diagnostics. Fusion Engineering and Design, 2015, 96-97, 786-789.	1.9	3
90	Experimental and numerical studies of the shutter dynamics for the ITER core CXRS diagnostic. Fusion Engineering and Design, 2017, 123, 722-726.	1.9	3

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91	In situ measurement of the spectral reflectance of mirror-like metallic surfaces during plasma exposition. Nuclear Materials and Energy, 2018, 17, 302-306.	1.3	3
92	Design status of the ITER core CXRS diagnostic setup. Fusion Engineering and Design, 2019, 146, 228-231.	1.9	3
93	Thermal analysis for optimization of the optical duct of the ITER core CXRS diagnostics. Fusion Engineering and Design, 2015, 96-97, 790-794.	1.9	2
94	Modeling of crack formation after pulse heat load in ITER-grade tungsten. AIP Conference Proceedings, 2016, , .	0.4	2
95	Power handling of the bulk tungsten divertor row at JET: First measurements and comparison to the GTM thermal model. Fusion Engineering and Design, 2013, 88, 1778-1781.	1.9	1
96	ITER core CXRS diagnostic: Assessment of different optical designs with respect to neutronics criteria. Fusion Engineering and Design, 2017, 123, 927-931.	1.9	1
97	Emission of Fast Hydrogen Atoms in a Low Density Gas Dischargeâ€"The Most â€œNaturalâ€•Mirror Laboratory. Atoms, 2019, 7, 81.	1.6	1
98	Advanced design of the ITER core CXRS shutter and integration into the diagnostic shield module of the Upper Port Plug No. 3. Fusion Engineering and Design, 2021, 168, 112391.	1.9	1
99	Monitoring Removal of W Layer from Ag Substrate Using Balmer-Î± Emission of Backscattered Hydrogen Atoms in Low Density Gas Discharge. Acta Physica Polonica A, 2020, 138, 643-649.	0.5	1
100	Plasma parameters and tungsten sputter rates in a high-frequency CCP. Physics of Plasmas, 2022, 29, 043511.	1.9	1
101	Engineering Methodology to Provide Integrity of the ITER Port Plug Onboard Components Dynamically Responding to Plasma Transients Combined With Seismic Events. IEEE Transactions on Plasma Science, 2019, 47, 1453-1457.	1.3	0
102	Main design features of the Rh-based first mirror developed for the ITER CXRS core diagnostics. Fusion Engineering and Design, 2021, 169, 112408.	1.9	0