

Stefan Baumann

List of Publications by Year in descending order

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113
papers

4,140
citations

201575

27
h-index

118793

62
g-index

120
all docs

120
docs citations

120
times ranked

3281
citing authors

#	ARTICLE	IF	CITATIONS
1	Mixed ionic–electronic conducting (MIEC) ceramic-based membranes for oxygen separation. <i>Journal of Membrane Science</i> , 2008, 320, 13-41.	4.1	1,006
2	Structural and functional investigation of graphene oxide–Fe ₃ O ₄ nanocomposites for the heterogeneous Fenton-like reaction. <i>Scientific Reports</i> , 2014, 4, 4594.	1.6	407
3	Ultrahigh oxygen permeation flux through supported Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} membranes. <i>Journal of Membrane Science</i> , 2011, 377, 198-205.	4.1	310
4	Oxygen permeation through tape-cast asymmetric all-La _{0.6} Sr _{0.4} Co _{0.2} Fe _{0.8} O _{3-δ} membranes. <i>Journal of Membrane Science</i> , 2013, 447, 297-305.	4.1	120
5	Novel B-site ordered double perovskite Ba ₂ Bi _{0.1} Sc _{0.2} Co _{1.7} O _{6-x} for highly efficient oxygen reduction reaction. <i>Energy and Environmental Science</i> , 2011, 4, 872-875.	15.6	112
6	Natural Gas to Fuels and Chemicals: Improved Methane Aromatization in an Oxygen-Permeable Membrane Reactor. <i>Angewandte Chemie - International Edition</i> , 2013, 52, 13794-13797.	7.2	111
7	Influence of sintering conditions on microstructure and oxygen permeation of Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} (BSCF) oxygen transport membranes. <i>Journal of Membrane Science</i> , 2010, 359, 102-109.	4.1	99
8	Ion-conducting ceramic membrane reactors for high-temperature applications. <i>Journal of Membrane Science</i> , 2017, 543, 79-97.	4.1	93
9	Manufacturing strategies for asymmetric ceramic membranes for efficient separation of oxygen from air. <i>Journal of the European Ceramic Society</i> , 2013, 33, 1251-1261.	2.8	90
10	Manufacturing and performance of advanced supported Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} (BSCF) oxygen transport membranes. <i>Journal of Membrane Science</i> , 2013, 433, 121-125.	4.1	86
11	Thermal stability of the cubic phase in Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} (BSCF)1. <i>Solid State Ionics</i> , 2011, 197, 25-31.	1.3	81
12	Mechanical properties and lifetime predictions for Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} membrane material. <i>Journal of Membrane Science</i> , 2011, 385-386, 263-268.	4.1	53
13	Strength degradation and failure limits of dense and porous ceramic membrane materials. <i>Journal of the European Ceramic Society</i> , 2013, 33, 2689-2698.	2.8	53
14	Simultaneous overcome of the equilibrium limitations in BSCF oxygen-permeable membrane reactors: Water splitting and methane coupling. <i>Catalysis Today</i> , 2012, 193, 2-7.	2.2	52
15	Towards the fabrication of La _{0.98-x} Sr _x Co _{0.2} Fe _{0.8} O _{3-δ} perovskite-type oxygen transport membranes. <i>Journal of the European Ceramic Society</i> , 2014, 34, 3741-3748.	2.8	49
16	Oxygen transport through supported Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} membranes. <i>Separation and Purification Technology</i> , 2014, 121, 60-67.	3.9	46
17	Influence of Microstructure and Surface Activation of Dual-Phase Membrane Ce _{0.8} Gd _{0.2} O _{2-δ} –FeCo ₂ O ₄ on Oxygen Permeation. <i>Journal of the American Ceramic Society</i> , 2016, 99, 349-355.	1.9	44
18	Electronic conductivity of Ce _{0.8} Gd _{0.2-x} Pr _x O _{2-δ} and influence of added CoO. <i>Physica Status Solidi (B): Basic Research</i> , 2011, 248, 314-322.	0.7	42

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19	Structural and functional properties of $\text{SrTi}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ ($0 \leq x \leq 1$) for the use as oxygen transport membrane. Separation and Purification Technology, 2015, 147, 414-421.	3.9	41
20	Copper oxide - perovskite mixed matrix membranes delivering very high oxygen fluxes. Journal of Membrane Science, 2017, 526, 323-333.	4.1	40
21	Bi-doping effects on the structure and oxygen permeation properties of $\text{BaSc}_{0.1}\text{Co}_{0.9}\text{O}_{3-\delta}$ perovskite membranes. Journal of Membrane Science, 2010, 361, 120-125.	4.1	38
22	Copper Exchanged Nanotitanate for High Temperature H_2 Adsorption. Industrial & Engineering Chemistry Research, 2014, 53, 11734-11739.	1.8	37
23	Ceramic materials for H_2 transport membranes applicable for gas separation under coal-gasification-related conditions. Journal of the European Ceramic Society, 2014, 34, 2381-2389.	2.8	32
24	Oxygen equilibration kinetics of mixed-conducting perovskites BSCF, LSCF, and PSCF at 900 °C determined by electrical conductivity relaxation. Solid State Ionics, 2015, 283, 30-37.	1.3	32
25	Creep behavior and its correlation with defect chemistry of $\text{La}_{0.58}\text{Sr}_{0.4}\text{Co}_{0.2}\text{Fe}_{0.8}\text{O}_{3-\delta}$. Acta Materialia, 2012, 60, 2479-2484.	3.8	31
26	A review on dual-phase oxygen transport membranes: from fundamentals to commercial deployment. Journal of Materials Chemistry A, 2022, 10, 2152-2195.	5.2	31
27	Comparison of freeze-dried and tape-cast support microstructure on high-flux oxygen transport membrane performance. Journal of Membrane Science, 2018, 564, 218-226.	4.1	29
28	Mechanical characterization of porous $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$. Journal of the European Ceramic Society, 2011, 31, 2997-3002.	2.8	28
29	Dual-phase membrane based on $\text{LaCo}_{0.2}\text{Ni}_{0.4}\text{Fe}_{0.4}\text{O}_{3-\delta-x}\text{-Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-\delta-x}$ composition for oxygen permeation under CO_2/SO_2 -rich gas environments. Journal of Membrane Science, 2018, 548, 117-124.	4.1	26
30	Co and Fe co-doping influence on functional properties of SrTiO_3 for use as oxygen transport membranes. Journal of the European Ceramic Society, 2018, 38, 5058-5066.	2.8	26
31	Comparison of Permeation Measurements and Hybrid Density-Functional Calculations on Oxygen Vacancy Transport in Complex Perovskite Oxides. Journal of Physical Chemistry C, 2014, 118, 29542-29553.	1.5	25
32	Plasma Spray Physical Vapor Deposition of $\text{La}_{1-x}\text{Sr}_x\text{Co}_y\text{Fe}_{1-y}\text{O}_{3-\delta}$ Thin-Film Oxygen Transport Membrane on Porous Metallic Supports. Journal of Thermal Spray Technology, 2014, 23, 213-219.	1.6	25
33	Tape Casting as a Multi Purpose Shaping Technology for Different Applications in Energy Issues. Materials Science Forum, 0, 706-709, 1035-1040.	0.3	23
34	Mechanical properties and lifetime predictions of dense $\text{SrTi}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ ($x = 0.25, 0.35, 0.5$). Journal of the European Ceramic Society, 2017, 37, 2629-2636.	2.8	23
35	Influence of porous structures on O_2 flux of BSCF asymmetric membranes. Separation and Purification Technology, 2017, 175, 164-169.	3.9	23
36	Chemical Environment-Induced Mixed Conductivity of Titanate as a Highly Stable Oxygen Transport Membrane. IScience, 2019, 19, 955-964.	1.9	23

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37	Structural and chemical stability of high performance Ce _{0.8} Gd _{0.2} O _{2-$\hat{\imath}$} FeCo ₂ O ₄ dual phase oxygen transport membranes. Journal of Membrane Science, 2017, 544, 278-286.	4.1	21
38	Syngas Production by Biogas Reforming in a Redox-Stable and CO ₂ -Tolerant Oxygen Transporting Membrane Reactor. Industrial & Engineering Chemistry Research, 2017, 56, 10134-10141.	1.8	19
39	2D/3D Assemblies of Amine-Functionalized Graphene Silica (Templated) Aerogel for Enhanced CO ₂ Sorption. ACS Applied Materials & Interfaces, 2019, 11, 30391-30400.	4.0	19
40	La-Sr-Fe-Co oxygen transport membranes on metal supports deposited by low pressure plasma spraying-physical vapour deposition. Journal of Membrane Science, 2013, 442, 119-123.	4.1	18
41	Material properties of perovskites in the quasi-ternary system LaFeO ₃ -LaCoO ₃ -LaNiO ₃ . Journal of Solid State Chemistry, 2016, 237, 183-191.	1.4	18
42	Influence of support layer resistance on oxygen fluxes through asymmetric membranes based on perovskite-type oxides SrTi _{1-x} Fe _x O _{3-δ} . Journal of Membrane Science, 2020, 596, 117704.	4.1	18
43	Zinc-doped BSCF perovskite membranes for oxygen separation. Separation and Purification Technology, 2017, 189, 399-404.	3.9	17
44	Improved CO ₂ Sorption in Freeze-Dried Amine Functionalized Mesoporous Silica Sorbent. Industrial & Engineering Chemistry Research, 2018, 57, 5653-5660.	1.8	17
45	Temperature-Induced Structural Reorganization of W-Doped Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-$\hat{\imath}$} Composite Membranes for Air Separation. Chemistry of Materials, 2019, 31, 7487-7492.	3.2	17
46	Design and fabrication of large-sized planar oxygen transport membrane components for direct integration in oxy-combustion processes. Separation and Purification Technology, 2019, 220, 89-101.	3.9	17
47	Supported Oxygen Transport Membranes for Oxyfuel Power Plants. Advances in Science and Technology, 0, , .	0.2	16
48	Development of a metallic/ceramic composite for the deposition of thin-film oxygen transport membrane. Journal of the European Ceramic Society, 2013, 33, 287-296.	2.8	16
49	Expansion behaviour of (Gd, Pr)-substituted CeO ₂ in dependence on temperature and oxygen partial pressure. Solid State Ionics, 2015, 283, 56-67.	1.3	16
50	Microstructural variations and their influence on the performance of solid oxide fuel cells based on yttrium-substituted strontium titanate ceramic anodes. Journal of Power Sources, 2015, 279, 678-685.	4.0	16
51	Chemical Compatibility Investigation of Thin-Film Oxygen Transport Membranes on Metallic Substrates. Journal of the American Ceramic Society, 2011, 94, 861-866.	1.9	15
52	Stability of ceramic materials for H ₂ transport membranes in gasification environment under the influence of gas contaminants. Journal of the European Ceramic Society, 2016, 36, 3457-3464.	2.8	15
53	Hybrid vinyl silane and P123 template sol-gel derived carbon silica membrane for desalination. Journal of Sol-Gel Science and Technology, 2018, 85, 280-289.	1.1	15
54	Yttrium doping of Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-$\hat{\imath}$} part I: Influence on oxygen permeation, electrical properties, reductive stability, and lattice parameters. Journal of the European Ceramic Society, 2018, 38, 2378-2387.	2.8	15

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55	Optimization of sintering conditions for improved microstructural and mechanical properties of dense Ce _{0.8} Gd _{0.2} O ₂ -FeCo ₂ O ₄ oxygen transport membranes. <i>Journal of the European Ceramic Society</i> , 2021, 41, 509-516.	2.8	15
56	Enhancing oxygen permeation of solid-state reactive sintered Ce _{0.8} Gd _{0.2} O ₂ -FeCo ₂ O ₄ composite by optimizing the powder preparation method. <i>Journal of Membrane Science</i> , 2021, 628, 119248.	4.1	15
57	Simulation of the effect of the porous support on flux through an asymmetric oxygen transport membrane. <i>Journal of Membrane Science</i> , 2017, 524, 334-343.	4.1	14
58	Ceramic Membranes: Materials “Components” Potential Applications. <i>ChemBioEng Reviews</i> , 2019, 6, 198-208.	2.6	14
59	Towards the development of materials for chemically stable carbonate-ceramic membranes to be used for CO ₂ separation in water-gas-shift reactors. <i>Separation and Purification Technology</i> , 2019, 215, 378-383.	3.9	14
60	Phase and microstructural characterizations for Ce _{0.8} Gd _{0.2} O ₂ -FeCo ₂ O ₄ dual phase oxygen transport membranes. <i>Journal of the European Ceramic Society</i> , 2020, 40, 5646-5652.	2.8	14
61	The effect of non-ionic porous domains on supported Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O ₃ membranes for O ₂ separation. <i>Journal of Membrane Science</i> , 2014, 454, 382-389.	4.1	13
62	Nanoscale assembly of lanthanum silica with dense and porous interfacial structures. <i>Scientific Reports</i> , 2015, 5, 8210.	1.6	13
63	Effect of Fe content on atomic and electronic structure of complex oxides Sr(Ti,Fe)O ₃ . <i>Solid State Ionics</i> , 2017, 308, 27-33.	1.3	13
64	A Data-Driven Framework for the Accelerated Discovery of CO ₂ Reduction Electrocatalysts. <i>Frontiers in Energy Research</i> , 2021, 9, .	1.2	13
65	Mechanical characterization of ceramics by means of a 3D defect analysis. <i>Ceramics International</i> , 2015, 41, 2411-2417.	2.3	12
66	Thermochemical stability of Fe- and co-functionalized perovskite-type SrTiO ₃ oxygen transport membrane materials in syngas conditions. <i>Journal of the European Ceramic Society</i> , 2019, 39, 4874-4881.	2.8	12
67	New insight into the microstructure of natural calcined laterites and their performance as heterogeneous Fenton catalyst for methylene blue degradation. <i>Reaction Kinetics, Mechanisms and Catalysis</i> , 2018, 124, 931-956.	0.8	11
68	Effect of MnO ₂ Concentration on the Conductivity of Ce _{0.9} Gd _{0.1} Mn _x O ₂ . <i>Crystals</i> , 2018, 8, 40.	1.0	11
69	Improved dark ambient degradation of organic pollutants by cerium strontium cobalt perovskite. <i>Journal of Environmental Sciences</i> , 2020, 90, 110-118.	3.2	11
70	Copper aided exchange in high performance oxygen production by CuCo binary oxides for clean energy delivery. <i>Journal of Materials Chemistry A</i> , 2015, 3, 17344-17350.	5.2	10
71	Environmental mineralization of caffeine micro-pollutant by Fe-MFI zeolites. <i>Environmental Science and Pollution Research</i> , 2018, 25, 3628-3635.	2.7	10
72	Phase stability and oxygen permeability of Fe-based BaFe _{0.9} Mg _{0.05} X _{0.05} O ₃ (X = Zr, Ce, Ca) membranes for air separation. <i>Separation and Purification Technology</i> , 2019, 220, 176-182.	3.9	10

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73	Three-Dimensional Performance Model for Oxygen Transport Membranes. Journal of the Electrochemical Society, 2014, 161, F1409-F1415.	1.3	9
74	Graphene oxide with zinc partially substituted magnetite (GO $\text{Fe}_{1-x}\text{Zn}_x\text{O}_y$) for the UV-assisted heterogeneous Fenton-like reaction. RSC Advances, 2016, 6, 44749-44757.	1.7	9
75	Application of Thin-Film Manufacturing Technologies to Solid Oxide Fuel Cells and Gas Separation Membranes. International Journal of Applied Ceramic Technology, 2013, 10, 421-427.	1.1	8
76	An Efficient Oxygen Activation Route for Improved Ammonia Oxidation through an Oxygen-Permeable Catalytic Membrane. ChemCatChem, 2014, 6, 1190-1194.	1.8	7
77	(Invited) The Role of Solid-Gas Electrochemical Interfaces for Mixed Ionic Electronic Conducting Oxygen Transport Membranes. ECS Transactions, 2015, 66, 21-33.	0.3	7
78	Scanning probe microscopy polarization experiments with polycrystalline $\text{Ce}_{0.8}\text{Gd}_{0.2-x}\text{Pr}_x\text{O}_{2-\delta}$ and $\text{Ce}_{0.8}\text{Y}_{0.2}\text{O}_{2-\delta}$ single crystals at room temperature. Solid State Ionics, 2016, 288, 325-330.	1.3	7
79	Creep behaviour of dense and porous $\text{SrTi}_{0.75}\text{Fe}_{0.25}\text{O}_{3-\delta}$ for oxygen transport membranes and substrates. Journal of the European Ceramic Society, 2018, 38, 5067-5073.	2.8	7
80	Micromechanical Characterization of $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-\delta}$ - $\text{FeCo}_{2}\text{O}_4$ Dual Phase Oxygen Transport Membranes. Advanced Engineering Materials, 2020, 22, 1901558.	1.6	7
81	Development and Proof of Concept of a Compact Metallic Reactor for MIEC Ceramic Membranes. Membranes, 2021, 11, 541.	1.4	7
82	Phase formation and performance of solid state reactive sintered $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-\delta}$ - FeCo_2O_4 composites. Journal of Materials Chemistry A, 2022, 10, 2412-2420.	5.2	7
83	Modulation of microporous/mesoporous structures in self-templated cobalt-silica. Scientific Reports, 2015, 5, 7970.	1.6	6
84	Molecular Weight Cut-Off and Structural Analysis of Vacuum-Assisted Titania Membranes for Water Processing. Materials, 2016, 9, 938.	1.3	6
85	Analysis of Charge Transport in $\text{Ce}_{0.8}\text{Gd}_{0.2-x}\text{Pr}_x\text{O}_{2-\delta}$ at $T = 600^\circ\text{C}$. Journal of the Electrochemical Society, 2017, 164, H491-H496.	1.3	6
86	Substrate Effect on Carbon/Ceramic Mixed Matrix Membrane Prepared by a Vacuum-Assisted Method for Desalination. Processes, 2018, 6, 47.	1.3	6
87	Mechanical reliability of $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-\delta}$ - FeCo_2O_4 dual phase membranes synthesized by one-step solid-state reaction. Journal of the American Ceramic Society, 2021, 104, 1814-1830.	1.9	6
88	Novel low-temperature lean NO_x storage materials based on $\text{La}_{0.5}\text{Sr}_{0.5}\text{Fe}_{1-x}\text{M}_x\text{O}_{3-\delta}/\text{Al}_2\text{O}_3$ infiltration composites (M = Ti, Zr, Nb). Applied Catalysis B: Environmental, 2021, 286, 119919.	10.8	6
89	Oxygen transport membranes: dense ceramic membranes for power plant applications. , 2011, , 255-292.		5
90	$\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ stability of. Materials Research Society Symposia Proceedings, 2011, 1309, 107.	0.1	5

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91	Feasibility study of LSCF5582 membrane integration into a nitrogen based chemical looping air separation process. <i>Chemical Engineering Research and Design</i> , 2017, 125, 96-107.	2.7	5
92	Microstructure and anisotropic mechanical properties of freeze dried SrTi _{0.75} Fe _{0.25} O _{3-δ} for oxygen transport membrane substrates. <i>Journal of the European Ceramic Society</i> , 2018, 38, 2774-2783.	2.8	5
93	Tape-casting and freeze-drying gadolinia-doped ceria composite membranes for carbon dioxide permeation. <i>Journal of Membrane Science</i> , 2022, 648, 120355.	4.1	5
94	Fabrication of Ce _{0.8} Gd _{0.2} O _{2-δ} thin-film oxygen transport membranes by reactive magnetron sputtering. <i>Thin Solid Films</i> , 2012, 526, 59-64.	0.8	4
95	Catalysis of silica sol-gel reactions using a PdCl ₂ precursor. <i>Journal of Sol-Gel Science and Technology</i> , 2020, 95, 456-464.	1.1	4
96	Sealing behaviour of glass-based composites for oxygen transport membranes. <i>Journal of the European Ceramic Society</i> , 2022, , .	2.8	4
97	The Development of New Perovskite-Type Oxygen Transport Membranes Using Machine Learning. <i>Crystals</i> , 2022, 12, 947.	1.0	4
98	Carbonation passivation layer of scandium loaded BSCF perovskite. <i>Ceramics International</i> , 2017, 43, 15179-15184.	2.3	3
99	Comparison of the Simplification of the Pressure Profiles Solving the Binary Friction Model for Asymmetric Membranes. <i>Membranes</i> , 2017, 7, 58.	1.4	3
100	Asymmetric LSCF Membranes Utilizing Commercial Powders. <i>Materials</i> , 2020, 13, 614.	1.3	3
101	Structural investigation of cobalt oxide seeded silica xerogels under harsh hydrothermal condition. <i>Journal of Sol-Gel Science and Technology</i> , 2021, 98, 470-477.	1.1	3
102	Residual stress and mechanical strength of Ce _{0.8} Gd _{0.2} O ₂ -FeCo ₂ O ₄ dual phase oxygen transport membranes. <i>Journal of the European Ceramic Society</i> , 2021, 41, 6539-6547.	2.8	3
103	Tuning the ceria interfaces inside the dual phase oxygen transport membranes. <i>Acta Materialia</i> , 2022, 226, 117603.	3.8	3
104	The in situ generated emerging phase inside dual phase oxygen transport membranes. <i>Acta Materialia</i> , 2022, 234, 118034.	3.8	3
105	Sensitivity of Material, Microstructure and Operational Parameters on the Performance of Asymmetric Oxygen Transport Membranes: Guidance from Modeling. <i>Membranes</i> , 2022, 12, 614.	1.4	3
106	New Generation of LSCF Oxygen Transport Membranes. <i>Procedia Engineering</i> , 2012, 44, 1552-1553.	1.2	2
107	Influence of flue gas components on the chemical properties of the ceramic materials (Co-)Ce _{0.8} Gd _{0.2} O _{2-δ} . <i>IOP Conference Series: Materials Science and Engineering</i> , 2011, 18, 072005.	0.3	1
108	Redox structural control of Pd and PdO silica matrices. <i>RSC Advances</i> , 2015, 5, 74144-74149.	1.7	1

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109	Measures to Reduce the N ₂ O Formation at Perovskite-Based Lean NO _x Trap Catalysts under Lean Conditions. <i>Catalysts</i> , 2021, 11, 917.	1.6	1
110	Measurement of polarization effects in dual-phase ceria-based oxygen permeation membranes using Kelvin probe force microscopy. <i>Beilstein Journal of Nanotechnology</i> , 2021, 12, 1380-1391.	1.5	1
111	Slow Crack Growth and Creep Rupture of Ba _{0.5} Sr _{0.5} Co _{0.8} Fe _{0.2} O _{3-δ} . <i>Key Engineering Materials</i> , 0, 488-489, 303-306.		
112	Mem-brain Gas Separation Membranes for Energy-efficient Processes. <i>Procedia Engineering</i> , 2012, 44, 1554-1556.	1.2	0
113	Performance study of asymmetric oxygen transport membranes with vertically channelled pores by phase inversion tape casting. <i>Open Ceramics</i> , 2022, 9, 100248.	1.0	0