Ahmed F Ghoniem

List of Publications by Year
in descending order

90 papers	4,415 citations	117571 34 h-index	110317 64 g-index
90 all docs	90 docs citations	90 times ranked	3087 citing authors

#	Article	IF	Citations
1	Oxy-fuel combustion of pulverized coal: Characterization, fundamentals, stabilization and CFD modeling. Progress in Energy and Combustion Science, 2012, 38, 156-214.	15.8	810
2	Needs, resources and climate change: Clean and efficient conversion technologies. Progress in Energy and Combustion Science, 2011, 37, 15-51.	15.8	254
3	Analysis of oxy-fuel combustion power cycle utilizing a pressurized coal combustor. Energy, 2009, 34, 1332-1340.	4.5	219
4	Grid-free simulation of diffusion using random walk methods. Journal of Computational Physics, 1985, 61, 1-37.	1.9	117
5	Large eddy simulations of coal gasification in an entrained flow gasifier. Fuel, 2013, 104, 664-680.	3.4	114
6	Operating pressure dependence of the pressurized oxy-fuel combustion power cycle. Energy, 2010, 35, 5391-5399.	4.5	113
7	Numerical study of a three-dimensional vortex method. Journal of Computational Physics, 1990, 86, 75-106.	1.9	112
8	Self-sustained oscillations and vortex shedding in backward-facing step flows: Simulation and linear instability analysis. Physics of Fluids, 2004, 16, 3361-3373.	1.6	106
9	Simulation of Oxy-Coal Combustion in a 100 kW_{th} Test Facility Using RANS and LES: A Validation Study. Energy & Fuels, 2012, 26, 4783-4798.	2.5	104
10	Multiphysics Simulations of Entrained Flow Gasification. Part II: Constructing and Validating the Overall Model. Energy & Fuels, 2012, 26, 464-479.	2.5	96
11	Effects of the freeâ€stream density ratio on free and forced spatially developing shear layers. Physics of Fluids, 1995, 7, 2036-2051.	1.6	87
12	Next-generation HVAC: Prospects for and limitations of desiccant and membrane-based dehumidification and cooling. Applied Energy, 2017, 200, 330-346.	5.1	83
13	Validation study of vortex methods. Journal of Computational Physics, 1988, 74, 283-317.	1.9	81
14	A dynamic reduced order model for simulating entrained flow gasifiers. Fuel, 2012, 91, 61-80.	3.4	73
15	Vortex simulation of laminar recirculating flow. Journal of Computational Physics, 1987, 68, 346-377.	1.9	70
16	Numerical study of the dynamics of a forced shear layer. Physics of Fluids, 1987, 30, 706.	1.4	68
17	Mixed ionic-electronic conducting (MIEC) membranes for thermochemical reduction of CO2: A review. Progress in Energy and Combustion Science, 2019, 74, 1-30.	15.8	67
18	Modeling the slag behavior in three dimensional CFD simulation of a vertically-oriented oxy-coal combustor. Fuel Processing Technology, 2013, 112, 106-117.	3.7	61

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19	On the phase between pressure and heat release fluctuations for propane/hydrogen flames and its role in mode transitions. Combustion and Flame, 2013, 160, 2827-2842.	2.8	60
20	K-means clustering for optimal partitioning and dynamic load balancing of parallel hierarchical N-body simulations. Journal of Computational Physics, 2005, 207, 493-528.	1.9	55
21	Numerical simulation of the convective instability in a dump combustor. AIAA Journal, 1991, 29, 911-919.	1.5	54
22	Shear flow-driven combustion instability: Evidence, simulation, and modeling. Proceedings of the Combustion Institute, 2002, 29, 53-60.	2.4	54
23	Vorticity structure and evolution in a transverse jet. Journal of Fluid Mechanics, 2007, 575, 267-305.	1.4	54
24	Numerical simulation of a thermally stratified shear layer using the vortex element method. Journal of Computational Physics, 1988, 79, 135-166.	1.9	49
25	Multiphysics Simulations of Entrained Flow Gasification. Part I: Validating the Nonreacting Flow Solver and the Particle Turbulent Dispersion Model. Energy & Fuels, 2012, 26, 451-463.	2.5	49
26	Design of a rotary reactor for chemical-looping combustion. Part 1: Fundamentals and design methodology. Fuel, 2014, 121, 327-343.	3.4	41
27	Rotary Bed Reactor for Chemical-Looping Combustion with Carbon Capture. Part 1: Reactor Design and Model Development. Energy & Fuels, 2013, 27, 327-343.	2.5	40
28	Steamâ€air blown bubbling fluidized bed biomass gasification (BFBBG): Multiâ€scale models and experimental validation. AICHE Journal, 2017, 63, 1543-1565.	1.8	40
29	Impact of fuel composition on the recirculation zone structure and its role in lean premixed flame anchoring. Proceedings of the Combustion Institute, 2015, 35, 1493-1500.	2.4	39
30	Three-dimensional vortex simulation of rollup and entrainment in a shear layer. Journal of Computational Physics, 1991, 97, 172-223.	1.9	38
31	Prediction and Validation of Major Gas and Tar Species from a Reactor Network Model of Air-Blown Fluidized Bed Biomass Gasification. Energy & Fuels, 2015, 29, 2437-2452.	2.5	37
32	On the characteristic flow and flame times for scaling oxy and air flame stabilization modes in premixed swirl combustion. Proceedings of the Combustion Institute, 2017, 36, 3799-3807.	2.4	37
33	An Adaptive Random Pore Model for Multimodal Pore Structure Evolution with Application to Char Gasification. Energy & Fuels, 2011, 25, 1423-1437.	2.5	36
34	In situ catalyst exsolution on perovskite oxides for the production of CO and synthesis gas in ceramic membrane reactors. Sustainable Energy and Fuels, 2019, 3, 2347-2355.	2.5	36
35	Life cycle assessment of rice husk torrefaction and prospects for decentralized facilities at rice mills. Journal of Cleaner Production, 2020, 275, 123177.	4.6	36
36	Two-dimensional simulations of steady perforated-plate stabilized premixed flames. Combustion Theory and Modelling, 2010, 14, 125-154.	1.0	35

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37	Contributions of the wall boundary layer to the formation of the counter-rotating vortex pair in transverse jets. Journal of Fluid Mechanics, 2011, 676, 461-490.	1.4	35
38	Enhancing coâ€production of H₂ and syngas via water splitting and POM on surfaceâ€modified oxygen permeable membranes. AIChE Journal, 2016, 62, 4427-4435.	1.8	35
39	Techno-economic assessment of two novel feeding systems for a dry-feed gasifier in an IGCC plant with Pd-membranes for CO2 capture. International Journal of Greenhouse Gas Control, 2014, 25, 62-78.	2.3	34
40	Development of a three-dimensional computational slag flow model for coal combustion and gasification. Fuel, 2013, 113, 357-366.	3.4	32
41	Correspondence Between â€œStableâ€•Flame Macrostructure and Thermo-acoustic Instability in Premixed Swirl-Stabilized Turbulent Combustion. Journal of Engineering for Gas Turbines and Power, 2015, 137, .	0.5	32
42	A computational model for the rise and dispersion of wind-blown, buoyancy-driven plumesâ€”I. Neutrally stratified atmosphere. Atmospheric Environment Part A General Topics, 1993, 27, 2295-2311.	1.3	31
43	Modeling and parametric analysis of nitrogen and sulfur oxide removal from oxy-combustion flue gas using a single column absorber. Fuel, 2015, 160, 178-188.	3.4	31
44	The structure of swirl-stabilized turbulent premixed CH4/air and CH4/O2/CO2 flames and mechanisms of intense burning of oxy-flames. Combustion and Flame, 2016, 174, 111-119.	2.8	31
45	Surface oxygen vacancy and oxygen permeation flux limits of perovskite ion transport membranes. Journal of Membrane Science, 2015, 489, 248-257.	4.1	30
46	Toward enhanced hydrogen generation from water using oxygen permeating LCF membranes. Physical Chemistry Chemical Physics, 2015, 17, 10093-10107.	1.3	30
47	Gas oxy combustion and conversion technologies for low carbon energy: Fundamentals, modeling and reactors. Proceedings of the Combustion Institute, 2019, 37, 33-56.	2.4	30
48	Three-Dimensional Vortex Simulation of Time Dependent Incompressible Internal Viscous Flows. Journal of Computational Physics, 1997, 134, 75-95.	1.9	29
49	Modified interpolation kernels for treating diffusion and remeshing in vortex methods. Journal of Computational Physics, 2006, 213, 239-263.	1.9	28
50	Interactions between oxygen permeation and homogeneous-phase fuel conversion on the sweep side of an ion transport membrane. Journal of Membrane Science, 2013, 428, 309-322.	4.1	28
51	Modeling of Biomass Char Gasification, Combustion, and Attrition Kinetics in Fluidized Beds. Energy & Fuels, 2016, 30, 360-376.	2.5	28
52	The three-dimensional structure of periodic vorticity layers under non-symmetric conditions. Journal of Fluid Mechanics, 1992, 243, 353.	1.4	26
53	Dispersion and deposition of smoke plumes generated in massive fires. Journal of Hazardous Materials, 1993, 33, 275-293.	6.5	26
54	Hydrogenâ€assisted Carbon Dioxide Thermochemical Reduction on La_{0.9}Ca_{0.1}FeO_{3â^'Î´} Membranes: A Kinetics Study. ChemSusChem, 2018, 11, 483-493.	3.6	23

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55	Vortex simulation of a three-dimensional reacting shear layer with infinite-rate kinetics. AIAA Journal, 1992, 30, 105-116.	1.5	22
56	Impact of the Flame-Holder Heat-Transfer Characteristics on the Onset of Combustion Instability. Combustion Science and Technology, 2013, 185, 1541-1567.	1.2	22
57	The influence of gasification reactions on char consumption under oxy-combustion conditions: Effects of particle trajectory and conversion. Proceedings of the Combustion Institute, 2013, 34, 3471-3478.	2.4	22
58	Modeling of indirect carbon fuel cell systems with steam and dry gasification. Journal of Power Sources, 2016, 313, 51-64.	4.0	22
59	<scp>Highâ€performance</scp> oxygen transport membrane reactors integrated with IGCC for carbon capture. AICHE Journal, 2020, 66, e16427.	1.8	22
60	Highly Durable C₂ Hydrocarbon Production via the Oxidative Coupling of Methane Using a BaFe_{0.9}Zr_{0.1}O_{3â^'Î´} Mixed Ionic and Electronic Conducting Membrane and La₂O₃ Catalyst. ACS Catalysis, 2021, 11, 3638-3661.	5.5	22
61	Rotary Bed Reactor for Chemical-Looping Combustion with Carbon Capture. Part 2: Base Case and Sensitivity Analysis. Energy & Fuels, 2013, 27, 344-359.	2.5	21
62	Oxidative Dehydrogenation of Ethane to Ethylene in an Oxygen-Ion-Transport-Membrane Reactor: A Proposed Design for Process Intensification. Industrial & Engineering Chemistry Research, 2019, 58, 7989-7997.	1.8	21
63	Effect of Two-Dimensional Shear Layer Dynamics on Mixing and Combustion at Low Heat Release. Combustion Science and Technology, 1990, 72, 79-99.	1.2	20
64	Simulation of rollup and mixing in rayleigh-taylor flow using the transport-element method. Journal of Computational Physics, 1992, 99, 1-27.	1.9	20
65	Lagrangian simulation of a reacting mixing layer at low heat release. AIAA Journal, 1988, 26, 690-697.	1.5	18
66	Laminar oxy-fuel diffusion flame supported by an oxygen-permeable-ion-transport membrane. Combustion and Flame, 2013, 160, 704-717.	2.8	18
67	Modeling CO₂Chemical Effects on CO Formation in Oxy-Fuel Diffusion Flames Using Detailed, Quasi-Global, and Global Reaction Mechanisms. Combustion Science and Technology, 2014, 186, 829-848.	1.2	18
68	Analysis of thermally coupled chemical looping combustion-based power plants with carbon capture. International Journal of Greenhouse Gas Control, 2015, 35, 56-70.	2.3	18
69	Effect of Reynolds number on the structure of recirculating flow. AIAA Journal, 1987, 25, 168-171.	1.5	15
70	A computational model for the rise and dispersion of wind-blown, buoyancy-driven plumesâ€”II. Linearly stratified atmosphere. Atmospheric Environment, 1994, 28, 3005-3018.	1.9	15
71	Simulation of the Nonreacting Flow in a Bluff-Body Burner; Effect of the Diameter Ratio. Journal of Fluids Engineering, Transactions of the ASME, 1993, 115, 474-484.	0.8	12
72	A fast 3D particle method for the simulation of buoyant flow. Journal of Computational Physics, 2008, 227, 9063-9090.	1.9	12

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73	Formation and Control of Sulfur Oxides in Sour Gas Oxy-Combustion: Prediction Using a Reactor Network Model. Energy & Fuels, 2015, 29, 7670-7680.	2.5	12
74	A highâ€efficiency novel <scp>IGCCâ€OTM</scp> carbon capture power plant design. Journal of Advanced Manufacturing and Processing, 2020, 2, .	1.4	11
75	BEM SOLUTION OF THE 3D INTERNAL NEUMANN PROBLEM AND A REGULARIZED FORMULATION FOR THE POTENTIAL VELOCITY GRADIENTS. International Journal for Numerical Methods in Fluids, 1997, 24, 81-100.	0.9	10
76	Vortex simulation of the intake flow in a planar piston-chamber device. International Journal for Numerical Methods in Fluids, 1991, 12, 237-260.	0.9	9
77	CO2 reduction and methane partial oxidation on surface catalyzed La0.9Ca0.1FeO3-Î´ oxygen transport membranes. Proceedings of the Combustion Institute, 2019, 37, 5517-5524.	2.4	9
78	Oxy-combustion of coal in liquid-antimony-anode solid oxide fuel cell system. Proceedings of the Combustion Institute, 2019, 37, 2841-2848.	2.4	9
79	Lagrangian simulation of a thin non-premixed flame in the field of an asymmetric layer. Combustion and Flame, 1996, 106, 41-61.	2.8	7
80	CFD Simulation of Entrained Flow Gasification With Improved Devolatilization and Char Consumption Submodels. , 2009, , .		7
81	The Impact of Critical Operational Parameters on the Performance of the Aluminum Anode Baking Furnace. Journal of Energy Resources Technology, Transactions of the ASME, 2021, 143, .	1.4	7
82	Simulation of the Piston Driven Flow Inside a Cylinder With an Eccentric Port. Journal of Fluids Engineering, Transactions of the ASME, 1998, 120, 319-326.	0.8	5
83	Response of Premixed Stoichiometric Oxy Flames to Strain: Role of Chemistry and Transport. Journal of Propulsion and Power, 2018, 34, 825-835.	1.3	5
84	Inference of reaction kinetics for supercritical water heavy oil upgrading with a twoâ€phase stirred reactor model. AICHE Journal, 2022, 68, e17488.	1.8	5
85	A computational model for the rise and dispersion of wind-blown, buoyancy-driven plumesâ€”III. Penetration of atmospheric inversion. Atmospheric Environment, 1994, 28, 3019-3032.	1.9	4
86	Impact of a Centerbody on the Unsteady Flow Dynamics of a Swirl Nozzle: Intermittency of Precessing Vortex Core Oscillations. Journal of Engineering for Gas Turbines and Power, 2022, 144, .	0.5	4
87	3D Vortex Simulation of Intake Flow in a Port-Cylinder with a Valve Seat and a Moving Piston. , 0, , .		3
88	The coupling effect of gas-phase chemistry and surface reactions on oxygen permeation and fuel conversion in ITM reactors. Journal of Membrane Science, 2015, 488, 1-12.	4.1	3
89	Techno-Economic Evaluation of Pressurized Oxy-Fuel Combustion Systems. , 2010, , .		1
90	Impact of curvature on the kinematic response of small flames. Journal of Engineering Mathematics, 2012, 74, 37-52.	0.6	0