Carlos Coimbra

List of Publications by Year
in descending order

116 papers	6,301 citations	71061 41 h-index	66879 78 g-index
118 all docs	118 docs citations	118 times ranked	3659 citing authors

#	Article	IF	Citations
1	Solar forecasting methods for renewable energy integration. Progress in Energy and Combustion Science, 2013, 39, 535-576.	15.8	742
2	Assessment of forecasting techniques for solar power production with no exogenous inputs. Solar Energy, 2012, 86, 2017-2028.	2.9	497
3	History and trends in solar irradiance and PV power forecasting: A preliminary assessment and review using text mining. Solar Energy, 2018, 168, 60-101.	2.9	338
4	Intra-hour DNI forecasting based on cloud tracking image analysis. Solar Energy, 2013, 91, 327-336.	2.9	288
5	Forecasting of global and direct solar irradiance using stochastic learning methods, ground experiments and the NWS database. Solar Energy, 2011, 85, 746-756.	2.9	257
6	Short-term reforecasting of power output from a 48 MWe solar PV plant. Solar Energy, 2015, 112, 68-77.	2.9	200
7	Fundamental aspects of modeling turbulent particle dispersion in dilute flows. Progress in Energy and Combustion Science, 1996, 22, 363-399.	15.8	173
8	Day-ahead forecasting of solar power output from photovoltaic plants in the American Southwest. Renewable Energy, 2016, 91, 11-20.	4.3	171
9	Verification of deterministic solar forecasts. Solar Energy, 2020, 210, 20-37.	2.9	142
10	Hybrid intra-hour DNI forecasts with sky image processing enhanced by stochastic learning. Solar Energy, 2013, 98, 592-603.	2.9	138
11	Hybrid solar forecasting method uses satellite imaging and ground telemetry as inputs to ANNs. Solar Energy, 2013, 92, 176-188.	2.9	138
12	Cloud-tracking methodology for intra-hour DNI forecasting. Solar Energy, 2014, 102, 267-275.	2.9	132
13	The variable viscoelasticity oscillator. Annalen Der Physik, 2005, 14, 378-389.	0.9	124
14	Benefits of solar forecasting for energy imbalance markets. Renewable Energy, 2016, 86, 819-830.	4.3	123
15	Proposed Metric for Evaluation of Solar Forecasting Models. Journal of Solar Energy Engineering, Transactions of the ASME, 2013, 135, .	1.1	119
16	On the variable order dynamics of the nonlinear wake caused by a sedimenting particle. Physica D: Nonlinear Phenomena, 2011, 240, 1111-1118.	1.3	116
17	Real-time forecasting of solar irradiance ramps with smart image processing. Solar Energy, 2015, 114, 91-104.	2.9	112
18	Nonlinear dynamics and control of a variable order oscillator with application to the van der Pol equation. Nonlinear Dynamics, 2009, 56, 145-157.	2.7	107

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19	General solution of the particle momentum equation in unsteady Stokes flows. Journal of Fluid Mechanics, 1998, 370, 53-72.	1.4	101
20	Variable Order Modeling of Diffusive-convective Effects on the Oscillatory Flow Past a Sphere. JVC/Journal of Vibration and Control, 2008, 14, 1659-1672.	1.5	98
21	Net load forecasting for high renewable energy penetration grids. Energy, 2016, 114, 1073-1084.	4.5	96
22	Nearest-neighbor methodology for prediction of intra-hour global horizontal and direct normal irradiances. Renewable Energy, 2015, 80, 770-782.	4.3	90
23	Assessment of machine learning techniques for deterministic and probabilistic intra-hour solar forecasts. Renewable Energy, 2018, 123, 191-203.	4.3	90
24	Real-time prediction intervals for intra-hour DNI forecasts. Renewable Energy, 2015, 83, 234-244.	4.3	77
25	Performance evaluation of various cryogenic energy storage systems. Energy, 2015, 90, 1024-1032.	4.5	71
26	Short-term probabilistic forecasts for Direct Normal Irradiance. Renewable Energy, 2017, 101, 526-536.	4.3	69
27	A comprehensive dataset for the accelerated development and benchmarking of solar forecasting methods. Journal of Renewable and Sustainable Energy, 2019, 11, .	0.8	69
28	A Smart Image-Based Cloud Detection System for Intrahour Solar Irradiance Forecasts. Journal of Atmospheric and Oceanic Technology, 2014, 31, 1995-2007.	0.5	65
29	3-D numerical model for predicting NOx emissions from an industrial pulverized coal combustor. Fuel, 1994, 73, 1128-1134.	3.4	63
30	Streamline-based method for intra-day solar forecasting through remote sensing. Solar Energy, 2014, 108, 447-459.	2.9	59
31	Overview of Solar-Forecasting Methods and a Metric for Accuracy Evaluation. , 2013, , 171-194.		58
32	On the determination of atmospheric longwave irradiance under all-sky conditions. Solar Energy, 2017, 144, 40-48.	2.9	57
33	On the Selection and Meaning of Variable Order Operators for Dynamic Modeling. International Journal of Differential Equations, 2010, 2010, 1-16.	0.3	56
34	Spherical Particle Motion in Harmonic Stokes Flows. AIAA Journal, 2001, 39, 1673-1682.	1.5	53
35	Forecasting of Global Horizontal Irradiance Using Sky Cover Indices. Journal of Solar Energy Engineering, Transactions of the ASME, 2013, 135, .	1.1	51
36	On the viscous motion of a small particle in a rotating cylinder. Journal of Fluid Mechanics, 2002, 469, 257-286.	1.4	50

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37	Effects of surface roughness and oscillatory flow on the dissolution of plaster forms: Evidence for nutrient mass transfer to coral reef communities. Limnology and Oceanography, 2005, 50, 246-254.	1.6	50
38	Day-ahead resource forecasting for concentrated solar power integration. Renewable Energy, 2016, 86, 866-876.	4.3	48
39	On the role of lagged exogenous variables and spatioâ€“temporal correlations in improving the accuracy of solar forecasting methods. Renewable Energy, 2015, 78, 203-218.	4.3	46
40	Quantitative evaluation of the impact of cloud transmittance and cloud velocity on the accuracy of short-term DNI forecasts. Renewable Energy, 2016, 86, 1362-1371.	4.3	45
41	Sun-tracking imaging system for intra-hour DNI forecasts. Renewable Energy, 2016, 96, 792-799.	4.3	44
42	An experimental study on stationary history effects in high-frequency Stokes flows. Journal of Fluid Mechanics, 2004, 504, 353-363.	1.4	43
43	Cloud enhancement of global horizontal irradiance in California and Hawaii. Solar Energy, 2016, 130, 128-138.	2.9	43
44	Impact of local broadband turbidity estimation on forecasting of clear sky direct normal irradiance. Solar Energy, 2015, 117, 125-138.	2.9	41
45	Short-term irradiance forecastability for various solar micro-climates. Solar Energy, 2015, 122, 587-602.	2.9	39
46	On the determination of coherent solar microclimates for utility planning and operations. Solar Energy, 2014, 102, 173-188.	2.9	35
47	Impact of onsite solar generation on system load demand forecast. Energy Conversion and Management, 2013, 75, 701-709.	4.4	31
48	Radiative cooling resource maps for the contiguous United States. Journal of Renewable and Sustainable Energy, 2019, 11, .	0.8	31
49	Verification of the SUNY direct normal irradiance model with ground measurements. Solar Energy, 2014, 99, 246-258.	2.9	30
50	Intra-hour irradiance forecasting techniques for solar power integration: A review. IScience, 2021, 24, 103136.	1.9	27
51	On the control and stability of variable-order mechanical systems. Nonlinear Dynamics, 2016, 86, 695-710.	2.7	26
52	Net load forecasts for solar-integrated operational grid feeders. Solar Energy, 2017, 158, 236-246.	2.9	26
53	On the effective spectral emissivity of clear skies and the radiative cooling potential of selectively designed materials. International Journal of Heat and Mass Transfer, 2019, 135, 1053-1062.	2.5	26
54	Ensemble re-forecasting methods for enhanced power load prediction. Energy Conversion and Management, 2014, 80, 582-590.	4.4	25

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55	Clustering the solar resource for grid management in island mode. Solar Energy, 2014, 110, 507-518.	2.9	22
56	Optimal theoretical design of 2-D microscale viscous pumps for maximum mass flow rate and minimum power consumption. International Journal of Heat and Fluid Flow, 2007, 28, 526-536.	1.1	21
57	On a causal dispersion model for the optical properties of metals. Applied Optics, 2018, 57, 5333.	0.9	19
58	Adaptive image features for intra-hour solar forecasts. Journal of Renewable and Sustainable Energy, 2019, 11, 036101.	0.8	19
59	Experimental verification of fractional history effects on the viscous dynamics of small spherical particles. Experiments in Fluids, 2005, 38, 112-116.	1.1	18
60	Stochastic-Learning Methods. , 2013, , 383-406.		18
61	Objective framework for optimal distribution of solar irradiance monitoring networks. Renewable Energy, 2015, 80, 153-165.	4.3	18
62	Optimal design of non-Newtonian, micro-scale viscous pumps for biomedical devices. Biotechnology and Bioengineering, 2007, 96, 37-47.	1.7	17
63	Underwater cloth simulation with fractional derivatives. ACM Transactions on Graphics, 2010, 29, 1-9.	4.9	17
64	On the dynamics of a spherical scaffold in rotating bioreactors. Biotechnology and Bioengineering, 2003, 84, 382-389.	1.7	14
65	A database infrastructure to implement real-time solar and wind power generation intra-hour forecasts. Renewable Energy, 2018, 123, 513-525.	4.3	14
66	On the stability of the Maxey-Riley equation in nonuniform linear flows. Physics of Fluids, 2005, 17, 113301.	1.6	13
67	Genetic optimization of heat transfer correlations for evaporator tube flows. International Journal of Heat and Mass Transfer, 2014, 70, 330-339.	2.5	13
68	Optical response of thin amorphous films to infrared radiation. Physical Review B, 2018, 97, .	1.1	13
69	A Sustainable Substitute for Ivory: the Jarina Seed from the Amazon. Scientific Reports, 2015, 5, 14387.	1.6	12
70	Spectral model for clear sky atmospheric longwave radiation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 209, 196-211.	1.1	12
71	Unsteady heat transfer in the harmonic heating of a dilute suspension of small particles. International Journal of Heat and Mass Transfer, 2000, 43, 3305-3316.	2.5	11
72	Estimation of the building energy loads and LNG demand for a cogeneration-based community energy system: A case study in Korea. Energy Conversion and Management, 2014, 87, 1010-1026.	4.4	11

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73	Direct Power Output Forecasts From Remote Sensing Image Processing. Journal of Solar Energy Engineering, Transactions of the ASME, 2018, 140, .	1.1	11
74	Cloud detection using convolutional neural networks on remote sensing images. Solar Energy, 2021, 230, 1020-1032.	2.9	11
75	Modeling particle dispersion in a turbulent, multiphase mixing layer. Journal of Wind Engineering and Industrial Aerodynamics, 1998, 73, 79-97.	1.7	10
76	Effectiveness of Complex Design Through an Evolutionary Approach. Journal of Thermophysics and Heat Transfer, 2008, 22, 115-118.	0.9	10
77	Evaluation of a dimensionless group number to determine second-einstein temperatures in a heat capacity model for all coal ranks. Combustion and Flame, 1995, 101, 209-220.	2.8	9
78	Variable-order modeling of nonlocal emergence in many-body systems: Application to radiative dispersion. Physical Review E, 2018, 98, .	0.8	9
79	A network of sky imagers for spatial solar irradiance assessment. Renewable Energy, 2022, 187, 1009-1019.	4.3	8
80	Heat Transfer in a Homogeneous Suspension Including Radiation and History Effects. Journal of Thermophysics and Heat Transfer, 1998, 12, 304-312.	0.9	7
81	Dynamics of suspended particles in eccentrically rotating flows. Journal of Fluid Mechanics, 2005, 535, 101-110.	1.4	7
82	The Dynamic Behavior of Once-Through Direct Steam Generation Parabolic Trough Solar Collector Row Under Moving Shadow Conditions. Journal of Solar Energy Engineering, Transactions of the ASME, 2017, 139, .	1.1	7
83	Mathematical methods for optimized solar forecasting. , 2017, , 111-152.		6
84	SCOPE: Spectral cloud optical property estimation using real-time GOES-R longwave imagery. Journal of Renewable and Sustainable Energy, 2020, 12, 026501.	0.8	6
85	THE COMPARISON OF TWO COMPREHENSIVE COMBUSTION CODES TO SIMULATE LARGE-SCALE, OIL-FIRED BOILERS. Combustion Science and Technology, 1996, 120, 55-81.	1.2	5
86	Design and Preparation of a Particle Dynamics Space Flight Experiment, SHIVA. Annals of the New York Academy of Sciences, 2004, 1027, 550-566.	1.8	5
87	Approximation of Transient 1D Conduction in a Finite Domain Using Parametric Fractional Derivatives. Journal of Heat Transfer, 2011, 133, .	1.2	5
88	Optimized heat transfer correlations for pure and blended refrigerants. International Journal of Heat and Mass Transfer, 2015, 85, 577-584.	2.5	5
89	Forecasting of Global Horizontal Irradiance Using Sky Cover Indices. , 2011, , .		4
90	A Novel Metric for Evaluation of Solar Forecasting Models. , 2011, , .		4

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91	Boiling heat transfer on a simulated nuclear fuel rod with annular fins. International Journal of Heat and Mass Transfer, 2014, 68, 29-34.	2.5	4
92	Fractional dynamics of tethered particles in oscillatory Stokes flows. Journal of Fluid Mechanics, 2014, 746, 606-625.	1.4	4
93	Anomalous carrier transport model for broadband infrared absorption in metals. Physical Review B, 2018, 98, .	1.1	4
94	Anisotropic corrections for the downwelling radiative heat transfer flux from various types of aerosols. International Journal of Heat and Mass Transfer, 2019, 136, 1006-1016.	2.5	4
95	Looking ahead with the Journal of Renewable and Sustainable Energy: Volume 11 and beyond. Journal of Renewable and Sustainable Energy, 2019, 11, .	0.8	4
96	Pool evaporation under low Grashof number downward convection. International Journal of Heat and Mass Transfer, 2021, 181, 122021.	2.5	4
97	Modelling of combustion and NOx emissions in industrial equipment. Pure and Applied Chemistry, 1993, 65, 345-354.	0.9	3
98	SHIVA - Spaceflight holography investigation in a virtual apparatus. , 2000, , .		2
99	Particle Response to Low-Reynolds-Number Oscillation of a Fluid in Microgravity. AIAA Journal, 2006, 44, 1060-1064.	1.5	2
100	History effects on the viscous motion of acoustically forced particles. Applied Physics Letters, 2006, 88, 214106.	1.5	2
101	Formal Evolutionary Development of Low-Entropy Dendritic Thermal Systems. Journal of Thermophysics and Heat Transfer, 2009, 23, 822-827.	0.9	2
102	Spectral solar irradiance on inclined surfaces: A fast Monte Carlo approach. Journal of Renewable and Sustainable Energy, 2020, 12, .	0.8	2
103	Simulating colliding flows in smoothed particle hydrodynamics with fractional derivatives. Computer Animation and Virtual Worlds, 2013, 24, 511-523.	0.7	1
104	Temperature-dependent carrier transport: Low-complexity model for the infrared optical and radiative properties of nickel. Journal of Applied Physics, 2019, 125, 205108.	1.1	1
105	Control parameterisation for POD via softwareâ€inâ€theâ€loop simulation. Journal of Engineering, 2019, 2019, 4864-4868.	0.6	1
106	A Constitutive Equation for Linear Viscoelastic Thermoset Materials Undergoing Compression. , 2007, , .		1
107	Isothermal and near-isothermal free evaporation of water from open tubes in air. International Journal of Heat and Mass Transfer, 2022, 189, 122687.	2.5	1
108	Best practices in renewable energy resourcing and integration. Journal of Renewable and Sustainable Energy, 2022, 14, 030402.	0.8	1

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109	The science behind SHIVA - Spaceflight Holography Investigation in a Virtual Apparatus. , 2001, , .		0
110	Viscous Particle Motion in a Rotating Wall Microgravity Simulator. , 2003, , .		0
111	Particle Response to Low Reynolds Number Oscillation of a Fluid in Microgravity. , 2004, , .		0
112	History Forces in Oscillating Convective Flow Past a Fixed Particle. , 2005, , .		0
113	Towards Zero Net Energy at a Community-Scale Level: Case Study at UC Merced. , 2011, , .		0
114	Energy, atmospheric physics, and climate: On the scientific role of the Journal of Renewable and Sustainable Energy. Journal of Renewable and Sustainable Energy, 2020, 12, 010401.	0.8	0
115	Characterization and Cost Analysis for the UC Merced Campus Load Including Effects of Solar Farm Variability. , 2012, , .		0
116	On the Slip Correction Factor for Simple Gas Molecules Diffusing in Air. AIAA Journal, 0, , 1-10.	1.5	0