

Carlos Coimbra

List of Publications by Year in descending order

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116
papers

6,301
citations

71102

41
h-index

66911

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.	31.2	742
2	Assessment of forecasting techniques for solar power production with no exogenous inputs. Solar Energy, 2012, 86, 2017-2028.	6.1	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.	6.1	338
4	Intra-hour DNI forecasting based on cloud tracking image analysis. Solar Energy, 2013, 91, 327-336.	6.1	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.	6.1	257
6	Short-term reforecasting of power output from a 48 MWe solar PV plant. Solar Energy, 2015, 112, 68-77.	6.1	200
7	Fundamental aspects of modeling turbulent particle dispersion in dilute flows. Progress in Energy and Combustion Science, 1996, 22, 363-399.	31.2	173
8	Day-ahead forecasting of solar power output from photovoltaic plants in the American Southwest. Renewable Energy, 2016, 91, 11-20.	8.9	171
9	Verification of deterministic solar forecasts. Solar Energy, 2020, 210, 20-37.	6.1	142
10	Hybrid intra-hour DNI forecasts with sky image processing enhanced by stochastic learning. Solar Energy, 2013, 98, 592-603.	6.1	138
11	Hybrid solar forecasting method uses satellite imaging and ground telemetry as inputs to ANNs. Solar Energy, 2013, 92, 176-188.	6.1	138
12	Cloud-tracking methodology for intra-hour DNI forecasting. Solar Energy, 2014, 102, 267-275.	6.1	132
13	The variable viscoelasticity oscillator. Annalen Der Physik, 2005, 14, 378-389.	2.4	124
14	Benefits of solar forecasting for energy imbalance markets. Renewable Energy, 2016, 86, 819-830.	8.9	123
15	Proposed Metric for Evaluation of Solar Forecasting Models. Journal of Solar Energy Engineering, Transactions of the ASME, 2013, 135, .	1.8	119
16	On the variable order dynamics of the nonlinear wake caused by a sedimenting particle. Physica D: Nonlinear Phenomena, 2011, 240, 1111-1118.	2.8	116
17	Real-time forecasting of solar irradiance ramps with smart image processing. Solar Energy, 2015, 114, 91-104.	6.1	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.	5.2	107

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19	General solution of the particle momentum equation in unsteady Stokes flows. <i>Journal of Fluid Mechanics</i> , 1998, 370, 53-72.	3.4	101
20	Variable Order Modeling of Diffusive-convective Effects on the Oscillatory Flow Past a Sphere. <i>JVC/Journal of Vibration and Control</i> , 2008, 14, 1659-1672.	2.6	98
21	Net load forecasting for high renewable energy penetration grids. <i>Energy</i> , 2016, 114, 1073-1084.	8.8	96
22	Nearest-neighbor methodology for prediction of intra-hour global horizontal and direct normal irradiances. <i>Renewable Energy</i> , 2015, 80, 770-782.	8.9	90
23	Assessment of machine learning techniques for deterministic and probabilistic intra-hour solar forecasts. <i>Renewable Energy</i> , 2018, 123, 191-203.	8.9	90
24	Real-time prediction intervals for intra-hour DNI forecasts. <i>Renewable Energy</i> , 2015, 83, 234-244.	8.9	77
25	Performance evaluation of various cryogenic energy storage systems. <i>Energy</i> , 2015, 90, 1024-1032.	8.8	71
26	Short-term probabilistic forecasts for Direct Normal Irradiance. <i>Renewable Energy</i> , 2017, 101, 526-536.	8.9	69
27	A comprehensive dataset for the accelerated development and benchmarking of solar forecasting methods. <i>Journal of Renewable and Sustainable Energy</i> , 2019, 11, .	2.0	69
28	A Smart Image-Based Cloud Detection System for Intrahour Solar Irradiance Forecasts. <i>Journal of Atmospheric and Oceanic Technology</i> , 2014, 31, 1995-2007.	1.3	65
29	3-D numerical model for predicting NOx emissions from an industrial pulverized coal combustor. <i>Fuel</i> , 1994, 73, 1128-1134.	6.4	63
30	Streamline-based method for intra-day solar forecasting through remote sensing. <i>Solar Energy</i> , 2014, 108, 447-459.	6.1	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. <i>Solar Energy</i> , 2017, 144, 40-48.	6.1	57
33	On the Selection and Meaning of Variable Order Operators for Dynamic Modeling. <i>International Journal of Differential Equations</i> , 2010, 2010, 1-16.	0.8	56
34	Spherical Particle Motion in Harmonic Stokes Flows. <i>AIAA Journal</i> , 2001, 39, 1673-1682.	2.6	53
35	Forecasting of Global Horizontal Irradiance Using Sky Cover Indices. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , 2013, 135, .	1.8	51
36	On the viscous motion of a small particle in a rotating cylinder. <i>Journal of Fluid Mechanics</i> , 2002, 469, 257-286.	3.4	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. <i>Limnology and Oceanography</i> , 2005, 50, 246-254.	3.1	50
38	Day-ahead resource forecasting for concentrated solar power integration. <i>Renewable Energy</i> , 2016, 86, 866-876.	8.9	48
39	On the role of lagged exogenous variables and spatio-temporal correlations in improving the accuracy of solar forecasting methods. <i>Renewable Energy</i> , 2015, 78, 203-218.	8.9	46
40	Quantitative evaluation of the impact of cloud transmittance and cloud velocity on the accuracy of short-term DNI forecasts. <i>Renewable Energy</i> , 2016, 86, 1362-1371.	8.9	45
41	Sun-tracking imaging system for intra-hour DNI forecasts. <i>Renewable Energy</i> , 2016, 96, 792-799.	8.9	44
42	An experimental study on stationary history effects in high-frequency Stokes flows. <i>Journal of Fluid Mechanics</i> , 2004, 504, 353-363.	3.4	43
43	Cloud enhancement of global horizontal irradiance in California and Hawaii. <i>Solar Energy</i> , 2016, 130, 128-138.	6.1	43
44	Impact of local broadband turbidity estimation on forecasting of clear sky direct normal irradiance. <i>Solar Energy</i> , 2015, 117, 125-138.	6.1	41
45	Short-term irradiance forecastability for various solar micro-climates. <i>Solar Energy</i> , 2015, 122, 587-602.	6.1	39
46	On the determination of coherent solar microclimates for utility planning and operations. <i>Solar Energy</i> , 2014, 102, 173-188.	6.1	35
47	Impact of onsite solar generation on system load demand forecast. <i>Energy Conversion and Management</i> , 2013, 75, 701-709.	9.2	31
48	Radiative cooling resource maps for the contiguous United States. <i>Journal of Renewable and Sustainable Energy</i> , 2019, 11, .	2.0	31
49	Verification of the SUNY direct normal irradiance model with ground measurements. <i>Solar Energy</i> , 2014, 99, 246-258.	6.1	30
50	Intra-hour irradiance forecasting techniques for solar power integration: A review. <i>IScience</i> , 2021, 24, 103136.	4.1	27
51	On the control and stability of variable-order mechanical systems. <i>Nonlinear Dynamics</i> , 2016, 86, 695-710.	5.2	26
52	Net load forecasts for solar-integrated operational grid feeders. <i>Solar Energy</i> , 2017, 158, 236-246.	6.1	26
53	On the effective spectral emissivity of clear skies and the radiative cooling potential of selectively designed materials. <i>International Journal of Heat and Mass Transfer</i> , 2019, 135, 1053-1062.	4.8	26
54	Ensemble re-forecasting methods for enhanced power load prediction. <i>Energy Conversion and Management</i> , 2014, 80, 582-590.	9.2	25

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55	Clustering the solar resource for grid management in island mode. <i>Solar Energy</i> , 2014, 110, 507-518.	6.1	22
56	Optimal theoretical design of 2-D microscale viscous pumps for maximum mass flow rate and minimum power consumption. <i>International Journal of Heat and Fluid Flow</i> , 2007, 28, 526-536.	2.4	21
57	On a causal dispersion model for the optical properties of metals. <i>Applied Optics</i> , 2018, 57, 5333.	1.8	19
58	Adaptive image features for intra-hour solar forecasts. <i>Journal of Renewable and Sustainable Energy</i> , 2019, 11, 036101.	2.0	19
59	Experimental verification of fractional history effects on the viscous dynamics of small spherical particles. <i>Experiments in Fluids</i> , 2005, 38, 112-116.	2.4	18
60	Stochastic-Learning Methods. , 2013, , 383-406.		18
61	Objective framework for optimal distribution of solar irradiance monitoring networks. <i>Renewable Energy</i> , 2015, 80, 153-165.	8.9	18
62	Optimal design of non-Newtonian, micro-scale viscous pumps for biomedical devices. <i>Biotechnology and Bioengineering</i> , 2007, 96, 37-47.	3.3	17
63	Underwater cloth simulation with fractional derivatives. <i>ACM Transactions on Graphics</i> , 2010, 29, 1-9.	7.2	17
64	On the dynamics of a spherical scaffold in rotating bioreactors. <i>Biotechnology and Bioengineering</i> , 2003, 84, 382-389.	3.3	14
65	A database infrastructure to implement real-time solar and wind power generation intra-hour forecasts. <i>Renewable Energy</i> , 2018, 123, 513-525.	8.9	14
66	On the stability of the Maxey-Riley equation in nonuniform linear flows. <i>Physics of Fluids</i> , 2005, 17, 113301.	4.0	13
67	Genetic optimization of heat transfer correlations for evaporator tube flows. <i>International Journal of Heat and Mass Transfer</i> , 2014, 70, 330-339.	4.8	13
68	Optical response of thin amorphous films to infrared radiation. <i>Physical Review B</i> , 2018, 97, .	3.2	13
69	A Sustainable Substitute for Ivory: the Jarina Seed from the Amazon. <i>Scientific Reports</i> , 2015, 5, 14387.	3.3	12
70	Spectral model for clear sky atmospheric longwave radiation. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2018, 209, 196-211.	2.3	12
71	Unsteady heat transfer in the harmonic heating of a dilute suspension of small particles. <i>International Journal of Heat and Mass Transfer</i> , 2000, 43, 3305-3316.	4.8	11
72	Estimation of the building energy loads and LNG demand for a cogeneration-based community energy system: A case study in Korea. <i>Energy Conversion and Management</i> , 2014, 87, 1010-1026.	9.2	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, .	1.8	11
74	Cloud detection using convolutional neural networks on remote sensing images. Solar Energy, 2021, 230, 1020-1032.	6.1	11
75	Modeling particle dispersion in a turbulent, multiphase mixing layer. Journal of Wind Engineering and Industrial Aerodynamics, 1998, 73, 79-97.	3.9	10
76	Effectiveness of Complex Design Through an Evolutionary Approach. Journal of Thermophysics and Heat Transfer, 2008, 22, 115-118.	1.6	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.	5.2	9
78	Variable-order modeling of nonlocal emergence in many-body systems: Application to radiative dispersion. Physical Review E, 2018, 98, .	2.1	9
79	A network of sky imagers for spatial solar irradiance assessment. Renewable Energy, 2022, 187, 1009-1019.	8.9	8
80	Heat Transfer in a Homogeneous Suspension Including Radiation and History Effects. Journal of Thermophysics and Heat Transfer, 1998, 12, 304-312.	1.6	7
81	Dynamics of suspended particles in eccentrically rotating flows. Journal of Fluid Mechanics, 2005, 535, 101-110.	3.4	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, .	1.8	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.	2.0	6
85	THE COMPARISON OF TWO COMPREHENSIVE COMBUSTION CODES TO SIMULATE LARGE-SCALE, OIL-FIRED BOILERS. Combustion Science and Technology, 1996, 120, 55-81.	2.3	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.	3.8	5
87	Approximation of Transient 1D Conduction in a Finite Domain Using Parametric Fractional Derivatives. Journal of Heat Transfer, 2011, 133, .	2.1	5
88	Optimized heat transfer correlations for pure and blended refrigerants. International Journal of Heat and Mass Transfer, 2015, 85, 577-584.	4.8	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.	4.8	4
92	Fractional dynamics of tethered particles in oscillatory Stokes flows. Journal of Fluid Mechanics, 2014, 746, 606-625.	3.4	4
93	Anomalous carrier transport model for broadband infrared absorption in metals. Physical Review B, 2018, 98, .	3.2	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.	4.8	4
95	Looking ahead with the Journal of Renewable and Sustainable Energy: Volume 11 and beyond. Journal of Renewable and Sustainable Energy, 2019, 11, .	2.0	4
96	Pool evaporation under low Grashof number downward convection. International Journal of Heat and Mass Transfer, 2021, 181, 122021.	4.8	4
97	Modelling of combustion and NOx emissions in industrial equipment. Pure and Applied Chemistry, 1993, 65, 345-354.	1.9	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.	2.6	2
100	History effects on the viscous motion of acoustically forced particles. Applied Physics Letters, 2006, 88, 214106.	3.3	2
101	Formal Evolutionary Development of Low-Entropy Dendritic Thermal Systems. Journal of Thermophysics and Heat Transfer, 2009, 23, 822-827.	1.6	2
102	Spectral solar irradiance on inclined surfaces: A fast Monte Carlo approach. Journal of Renewable and Sustainable Energy, 2020, 12, .	2.0	2
103	Simulating colliding flows in smoothed particle hydrodynamics with fractional derivatives. Computer Animation and Virtual Worlds, 2013, 24, 511-523.	1.2	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.	2.5	1
105	Control parameterisation for POD via software-in-the-loop simulation. Journal of Engineering, 2019, 2019, 4864-4868.	1.1	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.	4.8	1
108	Best practices in renewable energy resourcing and integration. Journal of Renewable and Sustainable Energy, 2022, 14, 030402.	2.0	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.	2.0	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.	2.6	0