

Michael Wetter

List of Publications by Year in descending order

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64
papers

3,295
citations

236833

25
h-index

265120

42
g-index

69
all docs

69
docs citations

69
times ranked

2125
citing authors

#	ARTICLE	IF	CITATIONS
1	Modelica Buildings library. Journal of Building Performance Simulation, 2014, 7, 253-270.	1.0	375
2	All you need to know about model predictive control for buildings. Annual Reviews in Control, 2020, 50, 190-232.	4.4	340
3	Co-simulation of building energy and control systems with the Building Controls Virtual Test Bed. Journal of Building Performance Simulation, 2011, 4, 185-203.	1.0	323
4	A comparison of deterministic and probabilistic optimization algorithms for nonsmooth simulation-based optimization. Building and Environment, 2004, 39, 989-999.	3.0	230
5	Modelica-based modelling and simulation to support research and development in building energy and control systems. Journal of Building Performance Simulation, 2009, 2, 143-161.	1.0	144
6	Dynamic equation-based thermo-hydraulic pipe model for district heating and cooling systems. Energy Conversion and Management, 2017, 151, 158-169.	4.4	119
7	Bidirectional low temperature district energy systems with agent-based control: Performance comparison and operation optimization. Applied Energy, 2018, 209, 502-515.	5.1	118
8	A framework for simulation-based real-time whole building performance assessment. Building and Environment, 2012, 54, 100-108.	3.0	105
9	Robust on-line fault detection diagnosis for HVAC components based on nonlinear state estimation techniques. Applied Energy, 2014, 124, 156-166.	5.1	101
10	Co-simulation of innovative integrated HVAC systems in buildings. Journal of Building Performance Simulation, 2009, 2, 209-230.	1.0	78
11	Functional mock-up unit for co-simulation import in EnergyPlus. Journal of Building Performance Simulation, 2014, 7, 192-202.	1.0	78
12	Equation-based languages – A new paradigm for building energy modeling, simulation and optimization. Energy and Buildings, 2016, 117, 290-300.	3.1	77
13	Determinate composition of FMUs for co-simulation. , 2013, , .		71
14	The reservoir network: A new network topology for district heating and cooling. Energy, 2020, 199, 117418.	4.5	69
15	A comparison of global optimization algorithms with standard benchmark functions and real-world applications using EnergyPlus. Journal of Building Performance Simulation, 2010, 3, 103-120.	1.0	66
16	Practical factors of envelope model setup and their effects on the performance of model predictive control for building heating, ventilating, and air conditioning systems. Applied Energy, 2019, 236, 410-425.	5.1	65
17	A thermodynamic analysis of a novel bidirectional district heating and cooling network. Energy, 2018, 144, 20-30.	4.5	63
18	Field demonstration and implementation analysis of model predictive control in an office HVAC system. Applied Energy, 2022, 318, 119104.	5.1	51

#	ARTICLE	IF	CITATIONS
19	Building optimization testing framework (BOPTTEST) for simulation-based benchmarking of control strategies in buildings. <i>Journal of Building Performance Simulation</i> , 2021, 14, 586-610.	1.0	48
20	Building design optimization using a convergent pattern search algorithm with adaptive precision simulations. <i>Energy and Buildings</i> , 2005, 37, 603-612.	3.1	44
21	Co-simulation for performance prediction of integrated building and HVAC systems – An analysis of solution characteristics using a two-body system. <i>Simulation Modelling Practice and Theory</i> , 2010, 18, 957-970.	2.2	42
22	Requirements for hybrid cosimulation standards. , 2015, , .		38
23	Cyber-Physical Modeling of Distributed Resources for Distribution System Operations. <i>Proceedings of the IEEE</i> , 2016, 104, 789-806.	16.4	38
24	Coupling indoor airflow, HVAC, control and building envelope heat transfer in the Modelica Buildings library. <i>Journal of Building Performance Simulation</i> , 2016, 9, 366-381.	1.0	38
25	A convergent optimization method using pattern search algorithms with adaptive precision simulation. <i>Building Services Engineering Research and Technology</i> , 2004, 25, 327-338.	0.9	32
26	Intelligent Building Energy Information and Control Systems for Low-Energy Operations and Optimal Demand Response. <i>IEEE Design and Test of Computers</i> , 2012, 29, 8-16.	1.4	27
27	Equation-based object-oriented modeling and simulation for data center cooling: A case study. <i>Energy and Buildings</i> , 2019, 186, 108-125.	3.1	27
28	Energy saving potential of a two-pipe system for simultaneous heating and cooling of office buildings. <i>Energy and Buildings</i> , 2017, 134, 234-247.	3.1	24
29	Vocabulary for the fourth generation of district heating and cooling. <i>Smart Energy</i> , 2021, 1, 100003.	2.6	24
30	Recent Developments of the Modelica "Buildings" Library for Building Energy and Control Systems. , 2011, , .		23
31	Site demonstration and performance evaluation of MPC for a large chiller plant with TES for renewable energy integration and grid decarbonization. <i>Applied Energy</i> , 2022, 321, 119343.	5.1	23
32	Precision Control for Generalized Pattern Search Algorithms with Adaptive Precision Function Evaluations. <i>SIAM Journal on Optimization</i> , 2006, 16, 650-669.	1.2	22
33	Modelica Library for Building Heating, Ventilation and Air-Conditioning Systems. , 2009, , .		21
34	BuildOpt – a new building energy simulation program that is built on smooth models. <i>Building and Environment</i> , 2005, 40, 1085-1092.	3.0	20
35	Modeling and simulating cyber-physical systems using CyPhySim. , 2015, , .		19
36	Equation-based object-oriented modeling and simulation of data center cooling systems. <i>Energy and Buildings</i> , 2019, 198, 503-519.	3.1	19

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37	IBPSA Project 1: BIM/GIS and Modelica framework for building and community energy system design and operation – ongoing developments, lessons learned and challenges. IOP Conference Series: Earth and Environmental Science, 2019, 323, 012114.	0.2	19
38	Building energy simulation in real time through an open standard interface. Energy and Buildings, 2016, 117, 282-289.	3.1	18
39	Estimating ASHRAE Guideline 36 energy savings for multi-zone variable air volume systems using Spawn of EnergyPlus. Journal of Building Performance Simulation, 2022, 15, 215-236.	1.0	16
40	Acceleration of the matrix multiplication of Radiance three phase daylighting simulations with parallel computing on heterogeneous hardware of personal computer. Journal of Building Performance Simulation, 2014, 7, 152-163.	1.0	15
41	Hardware-in-the-Loop co-simulation of distribution Grid for demand response. , 2016, , .		15
42	OpenBuildingControl: Digitizing the control delivery from building energy modeling to specification, implementation and formal verification. Energy, 2022, 238, 121501.	4.5	15
43	Shepherding Metadata Through the Building Lifecycle. , 2020, , .		14
44	Comparing computer run time of building simulation programs. Building Simulation, 2008, 1, 210-213.	3.0	12
45	CyDER – an FMI-based co-simulation platform for distributed energy resources. Journal of Building Performance Simulation, 2019, 12, 566-579.	1.0	12
46	CyPhySim. , 2015, , .		11
47	Fast and self-learning indoor airflow simulation based on <i>in situ</i> adaptive tabulation. Journal of Building Performance Simulation, 2018, 11, 99-112.	1.0	11
48	Simplifications for hydronic system models in modelica. Journal of Building Performance Simulation, 2018, 11, 639-654.	1.0	10
49	Tool coupling for the design and operation of building energy and control systems based on the Functional Mock-up Interface standard. , 2014, , .		10
50	Simulation Speed Analysis and Improvements of Modelica Models for Building Energy Simulation. , 2015, , .		10
51	ModestPy: An Open-Source Python Tool for Parameter Estimation in Functional Mock-up Units. , 2019, , .		10
52	Modelica-based modeling and simulation of district cooling systems: A case study. Applied Energy, 2022, 311, 118654.	5.1	10
53	Modelling of Heat Pumps with Calibrated Parameters Based on Manufacturer Data. , 2017, , .		7
54	Development and Verification of Control Sequences for Single-Zone Variable Air Volume System Based on ASHRAE Guideline 36. , 2020, , .		6

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55	Design Choices for Thermofluid Flow Components and Systems that are Exported as Functional Mockup Units. , 2015, , .		6
56	Control Description Language. , 2019, , .		6
57	Prototyping The BOPTTEST Framework For Simulation-Based Testing Of Advanced Control Strategies In Buildings. , 0, , .		5
58	An FMI-based Framework for State and Parameter Estimation. , 2014, , .		5
59	A fast and accurate modeling approach for water and steam thermodynamics with practical applications in district heating system simulation. Energy, 2022, 254, 124227.	4.5	5
60	Novel simulation concepts for buildings and community energy systems based on the Functional Mock-up Interface specification. , 2014, , .		3
61	CyDER - A Co-Simulation Platform for Grid Analysis and Planning for High Penetration of Distributed Energy Resources. , 2018, , .		3
62	Software Architecture and Implementation of Modelica Buildings Library Coupling for Spawn of EnergyPlus. , 0, , .		3
63	Verification of Control Sequences within OpenBuildingControl. , 0, , .		1
64	A Case Study on Condenser Water Supply Temperature Optimization with a District Cooling Plant. , 0, , .		0