Lieve Helsen

List of Publications by Year
in descending order

122 papers	6,151 citations	70961 41 h-index	74018 75 g-index
124 all docs	124 docs citations	124 times ranked	5322 citing authors

#	Article	IF	Citations
1	Reinforced model predictive control (RL-MPC) for building energy management. Applied Energy, 2022, 309, 118346.	5.1	55
2	Early-stage optimal design of hybrid GEOTABS buildings in terms of costs and CO2 emissions. Energy Conversion and Management, 2022, 257, 115392.	4.4	3
3	Comparison of Optimal Control Techniques for Building Energy Management. Frontiers in Built Environment, 2022, 8, .	1.2	10
4	Chance constrained stochastic MPC for building climate control under combined parametric and additive uncertainty. Journal of Building Performance Simulation, 2022, 15, 410-430.	1.0	3
5	Comparison of Model Complexities in Optimal Control Tested in a Real Thermally Activated Building System. Buildings, 2022, 12, 539.	1.4	11
6	Fluid temperature predictions of geothermal borefields using load estimations via state observers. Journal of Building Performance Simulation, 2021, 14, 1-19.	1.0	5
7	A data driven method for optimal sensor placement in multi-zone buildings. Energy and Buildings, 2021, 243, 110956.	3.1	12
8	Model-predictive control and reinforcement learning in multi-energy system case studies. Applied Energy, 2021, 303, 117634.	5.1	55
9	Building optimization testing framework (BOPTEST) for simulation-based benchmarking of control strategies in buildings. Journal of Building Performance Simulation, 2021, 14, 586-610.	1.0	48
10	The role of plasma in syngas tar cracking. Biomass Conversion and Biorefinery, 2020, 10, 857-871.	2.9	23
11	All you need to know about model predictive control for buildings. Annual Reviews in Control, 2020, 50, 190-232.	4.4	340
12	Seashell waste-derived materials for secondary catalytic tar reduction in municipal solid waste gasification. Biomass and Bioenergy, 2020, 143, 105828.	2.9	7
13	A Methodology for Long-Term Model Predictive Control of Hybrid Geothermal Systems: The Shadow-Cost Formulation. Energies, 2020, 13, 6203.	1.6	9
14	Analysis of Building Parameter Uncertainty in District Heating for Optimal Control of Network Flexibility. Energies, 2020, 13, 6220.	1.6	6
15	A simulation-based evaluation of substation models for network flexibility characterisation in district heating networks. Energy, 2020, 201, 117650.	4.5	20
16	Identification of multi-zone grey-box building models for use in model predictive control. Journal of Building Performance Simulation, 2020, 13, 472-486.	1.0	34
17	Production of H2-rich syngas from excavated landfill waste through steam co-gasification with biochar. Energy, 2020, 207, 118208.	4.5	42
18	Short-term modeling of hybrid geothermal systems for Model Predictive Control. Energy and Buildings, 2020, 215, 109884.	3.1	10

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19	Thermal tar cracking enhanced by cold plasma â€“ A study of naphthalene as tar surrogate. Energy Conversion and Management, 2020, 208, 112540.	4.4	28
20	Aggregating set-point temperature profiles for archetype-based: simulations of the space heat demand within residential districts. Journal of Building Performance Simulation, 2020, 13, 285-300.	1.0	4
21	Development and validation of a full-time-scale semi-analytical model for the short- and long-term simulation of vertical geothermal bore fields. Geothermics, 2020, 86, 101788.	1.5	17
22	Cloud-based implementation of white-box model predictive control for a GEOTABS office building: A field test demonstration. Journal of Process Control, 2020, 88, 63-77.	1.7	63
23	Cutting the Deployment Costs of Physics-Based MPC in Buildings by Simulation-Based Imitation Learning. , 2020, , .		1
24	Clustering a building stock towards representative buildings in the context of air-conditioning electricity demand flexibility. Journal of Building Performance Simulation, 2019, 12, 56-67.	1.0	12
25	Integrated Optimal Design and Control of Fourth Generation District Heating Networks with Thermal Energy Storage. Energies, 2019, 12, 2766.	1.6	25
26	IBPSA Project 1: BIM/GIS and Modelica framework for building and community energy system design and operation â€“ ongoing developments, lessons learned and challenges. IOP Conference Series: Earth and Environmental Science, 2019, 323, 012114.	0.2	19
27	Model implementation and verification of the envelope, HVAC and controller of an office building in Modelica. Journal of Building Performance Simulation, 2019, 12, 445-464.	1.0	5
28	Equation-based modelling for dynamic optimization of district scale energy systems â€“ a scalability study. , 2019, , .		1
29	Representative days selection for district energy system optimisation: a solar district heating system with seasonal storage. Applied Energy, 2019, 248, 79-94.	5.1	69
30	TACO, an automated toolchain for model predictive control of building systems: implementation and verification. Journal of Building Performance Simulation, 2019, 12, 180-192.	1.0	24
31	Integrated Modelica Model and Model Predictive Control of a Terraced House Using IDEAS. , 2019, , .		6
32	Simplifications for hydronic system models in modelica. Journal of Building Performance Simulation, 2018, 11, 639-654.	1.0	10
33	Control-oriented modeling of geothermal borefield thermal dynamics through Hammerstein-Wiener models. Renewable Energy, 2018, 120, 468-477.	4.3	16
34	Implementation and verification of the IDEAS building energy simulation library. Journal of Building Performance Simulation, 2018, 11, 669-688.	1.0	90
35	A theoretical benchmark for bypass controllers in a residential district heating network. Energy, 2018, 151, 45-53.	4.5	6
36	Controlling district heating and cooling networks to unlock flexibility: A review. Energy, 2018, 151, 103-115.	4.5	208

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37	Approximate model predictive building control via machine learning. Applied Energy, 2018, 218, 199-216.	5.1	164
38	Validated air handling unit model using indirect evaporative cooling. Journal of Building Performance Simulation, 2018, 11, 48-64.	1.0	9
39	Impact of demand controlled ventilation on system performance and energy use. Energy and Buildings, 2018, 174, 111-123.	3.1	21
40	Economic Optimal HVAC Design for Hybrid GEOTABS Buildings and CO2 Emissions Analysis. Energies, 2018, 11, 314.	1.6	7
41	Modelling steady-state thermal behaviour of double thermal network pipes. International Journal of Thermal Sciences, 2017, 117, 316-327.	2.6	39
42	Data-driven models for short-term thermal behaviour prediction in real buildings. Applied Energy, 2017, 204, 1375-1387.	5.1	63
43	Model selection for continuous commissioning of HVAC-systems in office buildings: A review. Renewable and Sustainable Energy Reviews, 2017, 76, 673-686.	8.2	32
44	Economic impact of persistent sensor and actuator faults in concrete core activated office buildings. Energy and Buildings, 2017, 142, 111-127.	3.1	30
45	Reduction of heat pump induced peak electricity use and required generation capacity through thermal energy storage and demand response. Applied Energy, 2017, 195, 184-195.	5.1	126
46	Dynamic equation-based thermo-hydraulic pipe model for district heating and cooling systems. Energy Conversion and Management, 2017, 151, 158-169.	4.4	119
47	Low Order Grey-box Models for Short-term Thermal Behavior Prediction in Buildings. Energy Procedia, 2017, 105, 2107-2112.	1.8	25
48	Unlocking flexibility by exploiting the thermal capacity of concrete core activation. Energy Procedia, 2017, 135, 92-104.	1.8	8
49	Energy Conservation in an Office Building Using an Enhanced Blind System Control. Energies, 2017, 10, 196.	1.6	7
50	Impact of the controller model complexity on model predictive control performance for buildings. Energy and Buildings, 2017, 152, 739-751.	3.1	65
51	A validated model for mixing and buoyancy in stratified hot water storage tanks for use in building energy simulations. Applied Energy, 2016, 172, 217-229.	5.1	46
52	Robustness analysis of a hybrid ground coupled heat pump system with model predictive control. Journal of Process Control, 2016, 47, 191-200.	1.7	12
53	Ten questions concerning integrating smart buildings into the smart grid. Building and Environment, 2016, 108, 273-283.	3.0	112
54	Geothermally activated building structures. , 2016, , 423-452.		3

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55	Combined design and control optimization of residential heating systems in a smart-grid context. Energy and Buildings, 2016, 133, 640-657.	3.1	43
56	Control-Oriented Thermal Modeling of Multizone Buildings: Methods and Issues: Intelligent Control of a Building System. IEEE Control Systems, 2016, 36, 86-111.	1.0	62
57	Active demand response with electric heating systems: Impact of market penetration. Applied Energy, 2016, 177, 636-648.	5.1	99
58	Dynamic modelling of biomass gasification in a co-current fixed bed gasifier. Energy Conversion and Management, 2016, 125, 264-276.	4.4	41
59	Comparison of load shifting incentives for low-energy buildings with heat pumps to attain grid flexibility benefits. Applied Energy, 2016, 167, 80-92.	5.1	83
60	Practical implementation and evaluation of model predictive control for an office building in Brussels. Energy and Buildings, 2016, 111, 290-298.	3.1	140
61	Quantification of flexibility in buildings by cost curves â€“ Methodology and application. Applied Energy, 2016, 162, 653-665.	5.1	148
62	Ground-coupled heat pumps: Part 1 â€“ Literature review and research challenges in modeling and optimal control. Renewable and Sustainable Energy Reviews, 2016, 54, 1653-1667.	8.2	94
63	Ground-coupled heat pumps: Part 2â€”Literature review and research challenges in optimal design. Renewable and Sustainable Energy Reviews, 2016, 54, 1668-1684.	8.2	41
64	Toolbox for development and validation of grey-box building models for forecasting and control. Journal of Building Performance Simulation, 2016, 9, 288-303.	1.0	70
65	Plasma gasification of refuse derived fuel in a single-stage system using different gasifying agents. Waste Management, 2016, 47, 246-255.	3.7	101
66	Integrated modeling of active demand response with electric heating systems coupled to thermal energy storage systems. Applied Energy, 2015, 151, 306-319.	5.1	167
67	Optimal Control Approaches for Analysis of Energy Use Minimization of Hybrid Ground-Coupled Heat Pump Systems. IEEE Transactions on Control Systems Technology, 2015, , 1-1.	3.2	16
68	A convex approach to a class of non-convex building HVAC control problems: Illustration by two case studies. Energy and Buildings, 2015, 93, 269-281.	3.1	25
69	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si1.gif" overflow="scroll"><mml:mrow><mml:msub><mml:mrow><mml:mi mathvariant="normal">CO</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:mrow></m cost of residential heat pumps with active demand response: demand- and supply-side effects. Applied Energy, 2015, 156, 490-501.	5.1	30
70	Methodology for Obtaining Linear State Space Building Energy Simulation Models. , 2015, , .		15
71	Simulation Speed Analysis and Improvements of Modelica Models for Building Energy Simulation. , 2015, , .		10
72	Rule-based demand-side management of domestic hot water production with heat pumps in zero energy neighbourhoods. Journal of Building Performance Simulation, 2014, 7, 271-288.	1.0	60

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73	Sensitivity analysis of feedback control for concrete core activation and impact on installed thermal production power. Journal of Building Performance Simulation, 2014, 7, 309-325.	1.0	5
74	Pyrolysis characteristics of excavated waste material processed into refuse derived fuel. Fuel, 2014, 122, 198-205.	3.4	35
75	Setting up a framework for model predictive control with moving horizon state estimation using JModelica. , 2014, , .		2
76	Grey-box Building Models for Model Order Reduction and Control. , 2014, , .		7
77	Advanced Hybrid Model for Borefield Heat Exchanger Performance Evaluation, an Implementation in Modelica. , 2014, , .		5
78	Short-term demand response of flexible electric heating systems: The need for integrated simulations. , 2013, , .		21
79	The crucial role of Waste-to-Energy technologies in enhanced landfill mining: a technology review. Journal of Cleaner Production, 2013, 55, 10-23.	4.6	382
80	Real-time control for services provided by battery energy storage systems in a residential low voltage grid with a large amount of PV. , 2013, , .		2
81	Building models for model predictive control of office buildings with concrete core activation. Journal of Building Performance Simulation, 2013, 6, 175-198.	1.0	69
82	Assessing electrical bottlenecks at feeder level for residential net zero-energy buildings by integrated system simulation. Applied Energy, 2012, 96, 74-83.	5.1	171
83	Multi-objective optimal control of an air-to-water heat pump for residential heating. Building Simulation, 2012, 5, 281-291.	3.0	26
84	Study of the optimal control problem formulation for modulating air-to-water heat pumps connected to a residential floor heating system. Energy and Buildings, 2012, 45, 43-53.	3.1	122
85	On the use of Laplace and Warburg variables for heat diffusion modeling. , 2011, , .		1
86	Grid impact indicators for active building simulation. , 2011, , .		18
87	Anaerobic digestion in global bio-energy production: Potential and research challenges. Renewable and Sustainable Energy Reviews, 2011, 15, 4295-4301.	8.2	685
88	Pyrolysis of chromated copper arsenate (CCA) treated wood waste at elevated pressure: Influence of particle size, heating rate, residence time, temperature and pressure. Journal of Analytical and Applied Pyrolysis, 2011, 92, 111-122.	2.6	19
89	Experimental investigation of pressure drop in packed beds of irregular shaped wood particles. Powder Technology, 2011, 205, 30-35.	2.1	48
90	Evaluation of adaptive thermal comfort models in moderate climates and their impact on energy use in office buildings. Energy and Buildings, 2011, 43, 423-432.	3.1	53

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91	Exergy analysis of the Chartherm process for energy valorization and material recuperation of chromated copper arsenate (CCA) treated wood waste. Waste Management, 2011, 31, 705-713.	3.7	4
92	Energy savings potential of a model-based controller for heating: A feasibility study. , 2011, , .		2
93	The Impact of Load Profile on the Grid-Interaction of Building Integrated Photovoltaic (BIPV) Systems in Low-Energy Dwellings. Journal of Green Building, 2010, 5, 137-147.	0.4	15
94	The Chartherm process, whatâ€™s in the name?. Waste Management, 2009, 29, 1649-1657.	3.7	7
95	Efficiently produced heat and cold is squandered by inappropriate control strategies: A case study. Energy and Buildings, 2009, 41, 1091-1098.	3.1	39
96	Thermal behaviour of arsenic trioxide adsorbed on activated carbon. Journal of Hazardous Materials, 2009, 166, 1238-1243.	6.5	30
97	Influence of massive heat-pump introduction on the electricity-generation mix and the GHG effectâ€"Belgian case study. International Journal of Energy Research, 2008, 32, 57-67.	2.2	7
98	Influence of massive heat-pump introduction on the electricity-generation mix and the GHG effect: Comparison between Belgium, France, Germany and The Netherlands. Renewable and Sustainable Energy Reviews, 2008, 12, 2140-2158.	8.2	24
99	Control of heating systems in residential buildings: Current practice. Energy and Buildings, 2008, 40, 1446-1455.	3.1	107
100	Simulation of a Thermochemical Packed Bed Reactor Developed to Treat Dried Chromated Copper Arsenate (CCA) Impregnated Wood Waste. High Temperature Materials and Processes, 2008, 27, .	0.6	2
101	The impact of thermal storage on the operational behaviour of residential CHP facilities and the overall CO2 emissions. Renewable and Sustainable Energy Reviews, 2007, 11, 1227-1243.	8.2	146
102	Tanalith E 3494 impregnated wood: Characterisation and thermal behaviour. Journal of Analytical and Applied Pyrolysis, 2007, 78, 133-139.	2.6	10
103	Formation of metal agglomerates during carbonisation of chromated copper arsenate (CCA) treated wood waste: Comparison between a lab scale and an industrial plant. Journal of Hazardous Materials, 2006, 137, 1438-1452.	6.5	11
104	Review of disposal technologies for chromated copper arsenate (CCA) treated wood waste, with detailed analyses of thermochemical conversion processes. Environmental Pollution, 2005, 134, 301-314.	3.7	111
105	Sampling technologies and air pollution control devices for gaseous and particulate arsenic: a review. Environmental Pollution, 2005, 137, 305-315.	3.7	36
106	Thermal behaviour of arsenic oxides (As2O5 and As2O3) and the influence of reducing agents (glucose) Tj ETQq0 0 0 rgBT /Overlock 10	1.2	42
107	Arsenic release during pyrolysis of CCA treated wood waste: current state of knowledge. Journal of Analytical and Applied Pyrolysis, 2003, 68-69, 613-633.	2.6	38
108	Metal Retention in the Solid Residue after Low-Temperature Pyrolysis of Chromated Copper Arsenate (CCA)-Treated Wood. Environmental Engineering Science, 2003, 20, 569-580.	0.8	22

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109	Development of a sampling train for arsenic in pyrolysis vapours resulting from pyrolysis of arsenic containing wood waste. Journal of Environmental Monitoring, 2003, 5, 758.	2.1	7
110	Kinetics of the low-temperature pyrolysis of chromated copper arsenate-treated wood. Journal of Analytical and Applied Pyrolysis, 2000, 53, 51-79.	2.6	72
111	Metal Behavior during the Low-Temperature Pyrolysis of Chromated Copper Arsenate-Treated Wood Waste. Environmental Science & Technology, 2000, 34, 2931-2938.	4.6	42
112	Low-temperature pyrolysis of CCA-treated wood: thermogravimetric analysis. Journal of Analytical and Applied Pyrolysis, 1999, 52, 65-86.	2.6	70
113	Total recycling of CCA treated wood waste by low-temperature pyrolysis. Waste Management, 1998, 18, 571-578.	3.7	56
114	The Microdistribution of Copper, Chromium and Arsenic in CCA Treated Wood and Its Pyrolysis Residue Using Energy Dispersive X-Ray Analysis in Scanning Electron Microscopy. Holzforschung, 1998, 52, 607-614.	0.9	29
115	Determination and Characterisation of Copper, Chromium and Arsenic in Chromated Copper Arsenate (CCA) Treated Wood and Its Pyrolysis Residues by Inductively Coupled Plasma Mass Spectrometry. Analyst, The, 1997, 122, 695-700.	1.7	23
116	Low-temperature pyrolysis of CCA-treated wood waste: Chemical determination and statistical analysis of metal input and output; mass balances. Waste Management, 1997, 17, 79-86.	3.7	50
117	Release of Metals during the Pyrolysis of Preservative Impregnated Wood. , 1997, , 220-228.		9
118	Detailed White-Box Non-Linear Model Predictive Control for Scalable Building HVAC Control. , 0, , .		0
119	Towards a DESTEST: a District Energy Simulation Test Developed in IBPSA Project 1. , 0, , .		3
120	Prototyping The BOPTEST Framework For Simulation-Based Testing Of Advanced Control Strategies In Buildings. , 0, , .		5
121	Analytical Solution for Optimal Mass Flow Rate in Primary Circuit of Ground-coupled Heat Pump Systems. , 0, , .		0
122	State Estimators Applied To A White-box Geothermal Borefield Controller Model. , 0, , .		0