

## Detailed Program Carnot User Meeting 2024 Day 1

Date	Time	Description	Contribution by	From
Thurs. 27.06.	09h00	<b>Welcome / Introduction / Information</b>	Christoph Messmer	FHNW, CH
		<b>Part 1: State of the Art Simulation Tools for Building Energy Modelling, HVAC Systems, Heat Pumps and Heat Pump Systems / Overview</b>		
	09h20	DesignBuilder® / EnergyPlus® / Open Modelica® with Buildings Library® (Lawrence Berkeley National Laboratory)	Will be further specified	Will be further specified
	09h40	IDA ICE (IDA Indoor Climate and Energy)	Will be further specified	EQUA Solutions AG, CH
	10h00	<b>Coffee - Break</b>		
	10h20	SIA 4010:2023 The procedure for validating simulation programs to perform calculations in accordance with SIA 380/2:2022 / SN EN ISO 52016-1:2017	Christoph Messmer	FHNW, CH
	10h40	Numerical evaluation of the energy performance of different configurations of a hybrid boiler-heat pump system for DHW production	M.S. Christian Natale	University of Bologna, IT
	11h00	RenoSource - Boiler Replacement with Dual Source Heat Pump / Pilot Project / Combination air and geothermal probes / Digital Twin for investigation of various control strategies	M.S. Christoph Meier	OST, CH
	11h20	Simulation of the coupling of heat pumps to ground sources with Matlab/Simscape and calibrating the models with 3D Comsol results	Prof. Dr. Andreas Witzig	ZHAW, CH
	11h40	Algorithms for Self-Consumption Optimization with PV and Heat Pumps in Polysun®	Prof. Dr. David Zogg	FHNW, CH
	12h00	Time Series Analysis and Forecasting Models for Fault Analysis in Domestic Solar Thermal Installations	Dr. Parantapa Sawant	FHNW, CH
	12h30	<b>Lunch</b>	Canteen *)	
		<b>Part 2: Carnot Toolbox for Matlab/Simulink Simulation of heat pumps and heat pump systems with the Carnot Toolbox (Examples from industry and research)</b>		
	13h40	Mathworks / Extending CARNOT with Heat Pump Models in Simscape	Vasco Lenzi MSc ETH	Mathworks, CH
	14h00	Carnot Blockset - Current Development Introduction / Basics / Concepts / Blocks	Dr. Bernd Hafner	Viessmann Climate Solutions, DE
	14h20	Applications using the Carnot Toolbox: Advanced Building and HVAC Simulation with CarnotUIBK	Prof. Dr. Fabian Ochs	University of Innsbruck, AT
	14h40	Simulation of hydraulic systems for heat pumps in multi-family buildings with CarnotUIBK	M.S. Elisa Venturi	University of Innsbruck, AT
	15h00	<b>Coffee Break</b>		

	15h20	Use of the Matlab/Simulink tool ALMABuild for the dynamic hydraulic balancing of a large multi-storey building with a vertical distribution system	M.S. Christian Natale	University of Bologna, IT
	15h40	<i>Open time slot</i>	Will be further specified	Will be further specified
	16h00	Hardware-in-the-Loop with LabVIEW and CARNOT: Simulation Based Thermo-Hydraulic Heat Pump Testbench	M.S. Tobias Reum	THI / InES, DE
	16h20	Hardware-in-the-Loop Simulation: Optimized Heat Pump Systems through Real-Time Thermal Building Simulation	M.S. Martin Brunner	iDM Energy Systems, DE
	16h40	<i>Open time slot</i>	Will be further specified	Will be further specified
	17h00	<i>Open time slot</i>	Will be further specified	Will be further specified
	19h00 – 22h00	<b>Carnot User Meeting 2024 Dinner</b>	Dinner at a restaurant in Basel *)	Location: tbd

\*) at own expense

FHNW University of Applied Sciences and Arts Northwestern Switzerland, CH  
 OST Eastern Switzerland University of Applied Sciences, CH  
 THI Technische Hochschule Ingolstadt, DE  
 ZHAW ZHAW School of Engineering, CH

### **CARNOT**

**Conventional And Renewable eNergy systems Optimization Toolbox**

<https://ch.mathworks.com/matlabcentral/fileexchange/68890-carnot-toolbox>

<https://www.fh-aachen.de/forschung/institute/sij/carnot>