Combining advanced mathematical methods, IoT and High-Performance Computing to optimize energy in existing buildings

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At a time of mass awareness of the impacts of climate change, mainly due to the increase in carbon emissions, reducing and controlling energy consumption are major challenges for the future. Taking up this challenge will help to contain the runaway rise in climate change. This partnership between Cemosis, the platform for collaboration between mathematics and industry at University of Strasbourg, and the company Synapse-Concept will speed up the identification of sources of energy savings in existing buildings by means of clustered calculations and will enable the effectiveness of the technical solutions proposed by architects and engineers to be virtually tested before any improvement work is undertaken. In this talk, we present an overview of the
mathematical and computational framework — coupling modeling simulation data assimilation, reduced order modeling and high performance computing — as well as some numerical results

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