

SÉMINAIRE ÉNERGIE – ENVIRONNEMENT  
Conférences 2024 - 2025

**Examples of building renovations  
with innovative heat pump integration**

**Daniel Philippen**  
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**Jeudi 13 mars à 17h15**

**Université de Genève  
66 Boulevard Carl-Vogt, 1205 Genève  
Salle 1 (rez-de-chaussée)**

**Conférence en présentiel suivie d'un apéritif**

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## **L'orateur**

Daniel Philippen studied environmental sciences at ETH Zurich and has been working at the SPF Institute for Solar Technology at OST Eastern Switzerland University of Applied Sciences since 2010, most recently as co-head of the 'Buildings and Thermal Grids' research group.

At SPF, he has been involved in projects related to the provision of renewable heat for buildings, with a focus on heat pump-based systems. For example, he was involved in the development of solar-ice heat pump systems including installation and operation in buildings.

In more recent projects, he has also been involved in the development of concepts for the serial renovation of buildings. Together with Pierre Hollmuller from the University of Geneva, he is currently leading the Innosuisse Flagship Project "Renowave".

## **La conférence**

Although Switzerland has gained a lot of experience in the use of heat pumps for the supply of buildings over the past decades, there are still widespread boundary conditions that can make it difficult or impossible to use heat pumps. Of particular relevance are inner-city applications, where the density of the settlements and noise protection requirements make it difficult to install geothermal probes or air heat exchangers. In large buildings, accessing the thermal source of the heat pumps can be difficult due to the size of the installations for the use of the source.

Two implementation projects are presented, in which system concepts were developed and tested that offer solutions to the challenges mentioned above. In a typical 100-year-old building in an inner-city block perimeter development, an air-to-water heat pump was installed in the attic to provide an individual heat supply despite strict noise protection requirements. The supply air for the heat pump is preheated by a PVT system installed on site. The second project presents the installation of a heat pump system in a new and large office building in which the floor slab and thus also the underlying soil are thermally activated and used as a seasonal heat source/sink for the heat pump.