

# A chair to reinvent the city

Benoît Beckers was recruited by the UPPA in Septembre of 2016. He now directs the new common laboratory **Architecture and urban physics** located in the ISA-BTP buildings in Anglet.



The UPPA, the technology center **Nobatek**, the New Aquitaine region and the Agglomération Côte Basque Adour came together to create an common laboratory, in the form of an academic chair attributed to Benoît Beckers. With a background in physical engineering, and a doctorate from the architecture school of the Polytechnical University of Catalogna, Benoît Beckers directed, for the last eight years, a research team in the Urban systems engineering department of the Technological University of Compiègne.

Becker's unusual profile is an indication of the ambitions of this new laboratory, originally called "Sustainable construction" but finally renamed "Architecture and urban physics".

When half of humanity lives in cities, the theories and the models that we have built so far no longer apply, because they do not take into account the urban dimension. It is meaningless to talk about sustainable construction while encouraging urban sprawl. We can't just think about buildings, but about cities. We need to move up to a bigger scale, change our point of view, especially by using physics and the digital tools that we now have.

Environmental physics were focused on agricultural production in the 1970's, on forests and acid rain in the 1980's, ozone layer depletion in the 1990's, and climate change in 2000's. One of the disciplin's key methodologies is the study of local energy flow. The same method was applied to urban buildings in the 1970's by Tim Oke, a candadian geographer, who worked on the question of the urban >heat island. The major technological advances of



the past few years have opened the way for a new approach to urban physics by means of computer simulations.



The goal of this UPPA common laboratory" is to design innovative tools like a digital model that would take into account not only the architectural dimension, but also data on the human movement, acoustics, sunlight... It is a major challenge. Urban physics requires an interdisciplinary approach. The new chair is intended to ally the capacities of the SIAME laboratory (*Engineering Science Applied to Mechanics and Electrical Engineering*), the work of the LATEP (*Laboratory of Thermal Energy and Processes*) and the experience and expertise of Nobatek in sustainable construction.

"We have the opportunity to give the UPPA an international visibility in an area where the competition is rare", explains Benoît Beckers. "One of the first tasks will be to develop a network in France and abroad." And two research topics will be launched quickly: ventilation by thermal drafts, and the development of a digital expert system for light and sunlight. "In urban planning, every decision has in very long-term impact. Looks at all the cities we you can still see the impact of Roman roads in their streets. The city of the future is being invented today."