

Benoit BECKERS

Director of the Urban Physics Joint Laboratory Univ Pau & Pays Adour (UPPA)

Born in 1969, Liège, Belgium, he has obtained an Engineering Degree in Physics from University of Liège (ULg) in 1992.

In 1993, he joined the Superior Architecture School of the Polytechnic University of Catalonia (UPC) in Barcelona, where he started personal researches on the following subjects: concert hall acoustics; daylight and solar radiation in architectural and urban projects; geometrical methods in numerical simulation; waves perception in their physical and cultural environment. In 2005, he presented a doctoral thesis on the subject: "Sensitive Geometry". In 2008, he moved to France as an associate professor in the Université de Technologie de Compiègne (UTC). Since 2016, he is appointed as a full professor in the civil engineering department (ISA BTP) of UPPA.

Benoit Beckers is the originator and one of the main designers of the Heliodon software devoted to the daylight and solar radiation simulation in architecture. This activity is presented on the web site <http://www.heliodon.net/>

Today, his teaching activities include lectures in Anglet, Barcelona and in the "École de Technologie Supérieure" (ÉTS), in Montreal.

- "Architectural Acoustics", "Introduction to Urbanism", ISA BTP (Anglet), since Sept. 2016.
- "Space and ambiance in architecture", UPC.
- "Urban ecosystems", in collaboration, ÉTS.

In 2010, he organized an international [workshop](#) on "Solar Energy at Urban Scale". In 2011, he presented his "habilitation to supervise researches" (the HDR French diploma) and in 2012 he edited the book "[Solar Energy at Urban Scale](#)", ISTE- John Wiley, with 18 contributors. In 2013, he started new developments in the finite element simulation of heat transfers between the buildings, the ground and the atmosphere, from the district scale to the entire city, including the large contemporaneous megalopolis. In 2014, he published "[Reconciliation of Geometry and Perception in Radiation Physics](#)", Wiley-ISTE. In 2016, he organized the "First International Conference on Urban Physics" ([FICUP](#)), in Quito and Galapagos.

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Most relevant publications:

The universal projection for computing data carried on the hemisphere, Benoit Beckers, Luc Masset & Pierre Beckers, Computer-Aided Design, Volume 43, Issue 2, Pages 219-226, February 2011.

A general rule for disk and hemisphere partition into equal-area cells, Benoit Beckers, Pierre Beckers, Computational Geometry - Theory and Applications, Volume 45, Issue 7, Pages 275–283, August 2012.

Taking Advantage of Low Radiative Coupling in 3D Urban Models, Benoit Beckers, Eurographics Workshop on Urban Data Modelling and Visualization, May 6-10, 2013, Girona, Spain.

Sky vault partition for computing daylight availability and shortwave energy budget on an urban scale, Benoit Beckers, Pierre Beckers, Lighting Research and Technology, vol. 46 no. 6, Pages 716-728, Dec. 2014.

A 66 line heat transfer finite element code to highlight the dual approach, Pierre Beckers, Benoit Beckers, Computers & Mathematics with Applications, Volume 70, Issue 10, Nov. 2015, Pages 2401–2413.

A fast daylighting method to optimize opening configurations in building design, Eduardo Fernández, Benoit Beckers, Gustavo Besuievsky, Energy and Buildings, Volume 125, 1 August 2016, Pages 205–218.