

**Parte A. DATOS PERSONALES**

<b>Fecha del CVA</b>	22/11/2021
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Nombre y apellidos	Benoit BECKERS		
DNI/NIE/pasaporte	081260300789 (Francia)	Edad	52
Núm. identificación del investigador	Researcher ID	L-7716-2014	
	Código Orcid	0000-0003-3094-5921	

**A.1. Situación profesional actual**

Organismo	Université de Pau et des Pays de l'Adour (UPPA)		
Dpto./Centro	ISA BTP		
Dirección	Allée du Parc Montauray 64600 ANGLET (Francia)		
Teléfono	correo electrónico	<a href="mailto:benoit.beckers@univ-pau.fr">benoit.beckers@univ-pau.fr</a>	
Categoría profesional	profesor catedrático	Fecha inicio	2016
Espec. cód. UNESCO	3308 3329		
Palabras clave	<b>Environmental Technology and Engineering, Urban planning</b>		

**A.2. Formación académica (título, institución, fecha)**

Licenciatura/Grado/Doctorado	Universidad	Año
Ingeniero Civil en Física	Université de Liège	1992
Doctor UPC	Universidad Politécnica de Cataluña	2005
Habilitado para Dirigir Investigación (HDR)	Université de Technologie de Compiègne	2011

**A.3. Indicadores generales de calidad de la producción científica**

Desde 2008: 26 artículos en revistas internacionales, 3 libros, 6 capítulos de libro, 60 congresos internacionales. Organización de 12 workshops internacionales, y de una conferencia internacional.

**Parte B. RESUMEN LIBRE DEL CURRÍCULUM**

Profesor de tercer ciclo (Fundación UPC, Barcelona, 2002-2008), Enseignant Chercheur Contractuel (Université de Technologie de Compiègne, Francia, 2008-2016), Professeur des Universités (UPPA, Francia, desde 2016).

Organizador principal de la "First International Conference on Urban Physics", Benoit Beckers, Tannya Pico, Silvia Jiménez (Eds.), 26 - 30 Septiembre, **2016**, Quito - Galápagos, Ecuador. Actas: 401 páginas, ISBN (*electrónico*) 978-9942-951-53-3.

**Parte C. MÉRITOS MÁS RELEVANTES (ordenados por tipología)**

**C.1. Publicaciones**

**Revistas internacionales:**

"Helping architects to design their personal daylight", B. Beckers & D. Rodríguez, WSEAS Transactions on environment and development, issue 7, volume 5, pp 467-477, ISSN: 1790-5079, July 2009.

"Correlation between Measured and Calculated Solar Radiation Data in Compiègne, France", E. Antaluca, L. Merino & B. Beckers, WSEAS Transactions on environment and development, issue 6, volume 6, pp 478-487, ISSN: 1790-5079, June 2010.

"The universal projection for computing data carried on the hemisphere", B. Beckers, L. Masset & P. Beckers, Computer-Aided Design (Elsevier, ISSN: 0010-4485), Volume 43, Issue 2, Pages 219-226, February 2011.

"La modélisation 3D : une nouvelle voie pour les documents d'urbanisme ? Application à l'optimisation énergétique des bâtiments", A. Prévost, D. Rodríguez, N. Molines, B. Beckers, Revue Internationale de Géomatique, Volume 21- n°4, 577-583, 2011, Lavoisier, Paris.

- “A general rule for disk and hemisphere partition into equal-area cells”, B. Beckers & P. Beckers, *Computational Geometry: Theory and Applications* (Elsevier, ISSN: 0925-7721), Volume 45, Issue 7, Pages 275–283, August 2012.
- “Sky vault partition for computing daylight availability and shortwave energy budget on an urban scale”, B. Beckers & P. Beckers, *Lighting Research and Technology*, vol. 46 no. 6, Pages 716-728, December 2014.
- “Urban layout optimization framework to maximize direct solar irradiation”, T. Vermeulen, C. Knopf-Lenoir, P. Villon, B. Beckers, *Computers, Environment and Urban Systems* 51, 1-12, May 2015.
- “A 66 line heat transfer finite element code to highlight the dual approach”, P. Beckers & B. Beckers, *Computers and Mathematics with Applications*, volume 70, issue 10, pp. 2401-2413, November 2015.
- “A Fast Daylighting Method to Optimize Opening Configurations in Building Design”, E. Fernández, B. Beckers, G. Besuievsky, *Energy and Buildings*, volume 125, 1, pages 205-218, August 2016.
- “Evaluation of the daylight conditions at early stages of an urban project”, R. Nahon, B. Beckers, O. Blanpain, In *European Journal of Environmental and Civil Engineering*, 2017.
- “Computing Urban Radiation: A Sparse Matrix Approach”, J.P. Aguerre, E. Fernández, G. Besuievsky and B. Beckers, In *Graphical Models*, volume 91, May 2017.
- “Characterization of façade fenestration for energy studies within the “Eixample” urban tissue of Barcelona”, E. García-Nevado, B. Beckers, H. Coch, *Energy Procedia* 122 (2017) 397-402.
- “Skyline-Based Geometric Simplification for Urban Solar Analysis, G. Besuievsky, B. Beckers and G. Patow”, In *Graphical Models*, *Graphical Models*, Volume 95, January 2018.
- “Editorial for Special issue on “Massive 3D Urban Models”, B. Beckers, P. Alliez and D. Aliaga, *Graphical Models*, Volume 95, January 2018.
- “Periodic urban models for optimization of passive solar irradiation”, T. Vermeulen, L. Merino, C. Knopf-Lenoir, P. Villon, B. Beckers, *Solar Energy* 162 (2018) 67–77.
- “A Technique for Massive Sky View Factor Calculations in Large Cities”, D. Muñoz, B. Beckers, G. Patow, G. Besuievsky, *International Journal of Remote Sensing*, 39:12, 4040-4058 (2018)
- “Importance-driven approach for reducing urban radiative exchange computations”, J. Aguerre, E. Fernández, B. Beckers, *Building Simulation*, December 2018
- “A street in perspective: Thermography simulated by the finite element method”, J. Aguerre, R. Nahon, E. García Nevado, C. La Borderie, E. Fernández, B. Beckers, *Building and Environment*, Volume 148, 15 January 2019, Pages 225-239 (2019)
- “Importance-driven approach for reducing urban radiative exchange computations”, J. Aguerre, E. Fernández, B. Beckers, *Building Simulation*, April 2019, Volume 12, Issue 2, pp 231–246.
- “Omnidirectional source modeling for ray tracing in room acoustics with specular reflection”, B. Beckers, *WSEAS TRANSACTIONS on ACOUSTICS and MUSIC*, Volume 6, 2019
- “Physically Based Simulation and Rendering of Urban Thermography”, J.P. Aguerre, E. García-Nevado, J. Acuña Paz y Miño, E. Fernández and B. Beckers, in: *Computer Graphics Forum*. Volume 39 (2020), number 6 pp. 377–391.
- “Visual metering of the Urban Radiative Environment through 4pi imagery”, J. Acuña Paz y Miño, C. Lawrence and B. Beckers, in: *Infrared Physics & Technology*, 2020.
- “Improving the daylighting performance of residential light wells by reflecting and redirecting approaches”, A. Bugeat, B. Beckers and E. Fernández, in: *Solar Energy*. Volume 207, 1 September 2020, Pages 1434-1444.
- “Assessing the cooling effect of urban textile shading devices through time-lapse thermography”, E. Garcia-Nevado, B. Beckers, H. Coch, in: *Sustainable Cities and Society*, 2020
- “Benefits of street sun sails to limit building cooling needs in a Mediterranean city”, E. Garcia-Nevado, N. Duport, A. Bugeat, B. Beckers, accepted in: *Building and Environment*, 2020
- “Pixel-by-pixel rectification of urban perspective thermography”, J. Acuña Paz y Miño, N. Duport, B. Beckers, *Remote Sensing of Environment*, 2021, vol. 266, p. 112689.

### Congresos internacionales desde 2018:

- “How can reflected light modify solar gains in a compact urban district?”, B. Beckers, J. Acuña Paz y Miño, C. Lawrence, World Renewable Energy Congress, July 30 - August 3 2018, Kingston University, UK
- “Effects of urban morphology on shading for Pedestrians. Sky view factor (SVF) as an indicator of solar access”, B. Massoud, H. Coch, I. Crespo, B. Beckers, PLEA Hong Kong, Smart and Healthy within the 2-degree Limit, December 2018
- “FEM-based Heat Transfer Simulations on an Urban Scale”, B. Beckers, In: LAE'19, Oxford, United Kingdom, 14 - 15 March 2019, Keynote Abstract (2019)
- “4Pi Thermography: A projection to Understand Thermal Balance”, J. Acuña Paz y Miño, C. Lawrence, B. Beckers, Proceedings of the 16th IBPSA Conference, Rome, Italy, Sept. 2-4 2019, Pages 448 - 455
- “Improving FEM computations for the simulation of thermograms at the urban scale”, J.P. Aguerre, R. Nahon, E. Fernández, B. Beckers, Proceedings of the 16th IBPSA Conference, Rome, Italy, Sept. 2-4 2019, Pages 3274 - 3281
- “A Multi-Scale Consideration of Daylight in a Real Urban Context”, A. Bugeat, E. Fernández, B. Beckers, J.P. Aguerre, Proceedings of the 16th IBPSA Conference, Rome, Italy, Sept. 2-4 2019, Pages 3460 - 3467
- “Handling 3D Model of a Street for an Urban Thermal Study with the Finite Element Method”, N. Dupont, J. Acuña Paz y Miño, B. Beckers, Proceedings of the 16th IBPSA Conference, Rome, Italy, Sept. 2-4 2019, Pages 3385 - 3392
- “Exploring the Sky Longwave Radiance Distribution in the French Basque Country”, R. Nahon, J. Acuña Paz y Miño, B. Beckers, Proceedings of the 16th IBPSA Conference, Rome, Italy, Sept. 2-4 2019, Pages 4134 - 4140
- “The use of thermography to highlight the relationship between air and surface temperatures in urban scenes”, E. Garcia-Nevado, H. Coch-Roura, B. Beckers, CISBAT 2019 September 2019, Lausanne, Switzerland, J. Phys.: Conf. Ser. 1343 012018
- “A radiosity-based methodology considering urban environments for assessing daylighting”, G. Besuievsky, E. Fernandez, J. P. Aguerre and B. Beckers, CISBAT 2019 September 2019, Lausanne, Switzerland, J. Phys.: Conf. Ser. 1343 012018
- “Recent Advances in Urban Physics”, B. Beckers, EESAP10 - CICA3, European Congress 2019, 11-12 Septiembre, Vitoria, Spain, Guest speaker 2019
- “The Oasis Effect Concept in Hot Desert Climate Cities: Densifying and Compacting Around Metro Stations to Enhance Pedestrian Comfort”, Masoud Badia, Coch Helena, Beckers Benoit, In XIII CTV 2019 Proceedings: XIII International Conference on Virtual City and Territory: “Challenges and paradigms of the contemporary city”: UPC, Barcelona, October 2-4, Pages 1 - 16 2019
- “Procedural modeling buildings for finite element method simulation”, G. Besuievsky, E. García-Nevado, G. Patow, B. Beckers, CISBAT 2021, 8-10 September 2021, Lausanne, Switzerland, J. Phys.: Conf. Ser. 2042 012074.
- “Impact of multiple reflections on urban acoustics”, I. de Bort, B. Beckers, CISBAT 2021, 8-10 September 2021, Lausanne, Switzerland, J. Phys.: Conf. Ser. 2042 012052.

### Libros:

- Coordinador del libro “Solar Energy at Urban Scale”, 18 autores (384 paginass), ISTE-John Wiley & sons, 2012, ISBN 978-1-84821-356-2.
- “Reconciliation of Geometry and Perception in Radiation Physics”, B. Beckers & P. Beckers (192 paginas), ISTE-John Wiley & sons, 2014, ISBN: 978-1-84821-583-2.
- “Multiscale analysis as a central component of urban physics modeling”, in “Computational Methods for Solids and Fluids: Multiscale Analysis, Probability Aspects, Model Reduction and Software Coupling”, A. Ibrahimbegovic ed., Computational Methods in Applied Sciences series, Springer, 2016.
- Proceedings of the “First International Conference on Urban Physics”, Benoit Beckers, Tannya Pico, Silvia Jiménez (Eds), 26 - 30 September, 2016, Quito - Galápagos, Ecuador, 401 pages, ISBN (*electronic*) 978-9942-951-53-3
- “Visualizing the Infrared Response of an Urban Canyon Throughout a Sunny Day”. B. Beckers, J. Aguerre, G. Besuievsky, E. Fernández, E. Garcia Nevado, C. La Borderie, R. Nahon. In:

Sayigh A. (eds) Sustainable Building for a Cleaner Environment. Innovative Renewable Energy. Springer, Cham, Pages 276-284 (2019).

“Urban Planning Enriched by Its Representations, from Perspective to Thermography”, B. Beckers, E. Garcia-Nevado, in: Sayigh A. (eds) Sustainable Vernacular Architecture. Innovative Renewable Energy. Springer, Cham, Pages 165-180 2019.

“How Can Reflected Light Modify Solar Gains in a Compact Urban District?”, B. Beckers, J. Acuña Paz y Miño, C. Lawrence, in: Sayigh A. (eds) Renewable Energy and Sustainable Buildings. Innovative Renewable Energy. Springer, Cham, Pages 699-707 2020

“The Correlation Between Urban Morphology Parameters and Incident Solar Radiation Performance to Enhance Pedestrian Comfort, Case Study Jeddah, Saudi Arabia”, Badia Masoud, Helena Coch, Benoit Beckers, in : Springer, Singapore, Part of the Smart Innovation, Systems and Technologies book series (SIST, volume 163), Pages 543 - 554 2020

“Radiative Exchanges in the Dense City”, E. Garcia-Nevado, B. Beckers, in: Chiesa G. (eds) Bioclimatic Approaches in Urban and Building Design. PoliTO Springer Series. Springer, Cham. [https://doi.org/10.1007/978-3-030-59328-5\\_17](https://doi.org/10.1007/978-3-030-59328-5_17), pp 321-349, 2021.

## C.2. Proyectos

Réponse au quatrième appel à projets de recherche de la Fondation Bâtiment Energie, en tant que porteur du projet REPA-F4 (Réhabilitation des Etablissements pour Personnes Agées et Facteur 4) ; projet lauréat (avril 2009).

Proyecto FONDECYT « Aprovechamiento energético solar en fachadas integrando el entorno urbano », dirigido por Luz A. Cárdenas Jirón, Universidad de Chile, 2013-2015.

Projet CONVERGENCES « Albert Kahn : Archéologie d'un Héritage Nippon », porté par Jean-Sébastien Cluzel, Paris-Sorbonne, 2014-2015.

Proyecto MUMM “Mediterranean Urban Morphology Characterization: Identification of Parameters Involved in Architectural Energy Efficiency”, Universidad Politécnica de Cataluña, Programa Estatal de Investigación, Desarrollo e Innovación Orientada a los Retos de la Sociedad (Ministerio Español de Economía y Competitividad), 2013-2016.

Proyecto FSE\_1\_2014\_1\_102344 “Optimal design of lighting in public buildings”, Université de la République (Montevideo, Uruguay), Fondo Sectorial de Energía, 2014-2016

Proyecto GEN3DLIVE, “Generation, simulation and interactive visualization of 3D geometric models from large data sets with applications in human environments and life quality improvement.”, Université Polytechnique de Catalogne (Espagne) et Université de Gérone (Espagne), Proyectos de I+D “EXCELENCIA” y Proyectos de I+D+I “RETOS INVESTIGACIÓN”, Dirección General de Investigación Científica y Técnica, 2014-2016.

Projet SATS-SU : Plemo3D « Le-vol-des-cigognes », porté par Jean-Sébastien Cluzel, Paris-Sorbonne, 2016.

## C.3. Dirección de tesis

Elie Ghanassia (codirección, UTC, con M. Maizia, Université de Tours, 2012), Luis Merino (UTC, 2013), Thibaut Vermeulen (codirección, con P. Villon, UTC, 2014), Raphaël Nahon (codirección con O. Blanpain, Université de Lille, 2017), José Pedro Aguerre (codirección con E. Fernández, Université de la République, Uruguay, 2020), Jairo Acuña Paz y Miño (codirección con C. Lawrence, UPPA), Antoine Bugeat (codirección con E. Fernández, UPPA), Nicolas Duport (UPPA).