

Parte A. DATOS PERSONALES

Fecha del CVA	05/07/2019
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Nombre y apellidos	Benoit BECKERS		
DNI/NIE/pasaporte	081260300789 (Francia)	Edad	50
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 Montaury	64600 ANGLET (Francia)	
Teléfono	correo electrónico	benoit.beckers@univ-pau.fr	
Categoría profesional	profesor catedrático	Fecha inicio	2016
Espec. cód. UNESCO	3308 3329		
Palabras clave	Environmental Technology and Engineering, Urban planning		

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: 18 artículos en revistas internacionales, tres libros, tres capítulos de libro, 49 congresos internacionales. Organización de 10 workshops internacionales, y de un congreso.

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. Garcia Nevado, C. La Borderie, E. Fernández, B. Beckers, *Building and Environment*, Volume 148, 15 January 2019, Pages 225-239 (2019)

Congresos internacionales desde 2014:

- “A Configurable LoD for Procedural Urban Models intended for Daylight Simulation”, G. Besuievsky, S. Barroso, B. Beckers and G. Patow, *Eurographics Workshop on Urban Data Modelling and Visualisation*, April 7-11, 2014, Strasbourg, France.
- “Super Element Technique for Solar Energy Optimization at Urban Level”, B. Beckers and P. Beckers, OPT-i, *International Conference on Engineering and Applied Sciences Optimization*, 4-6 June 2014, Kos Island, Greece.
- “An up-to-date research program to support the urban physics paradigm”, keynote, B. Beckers, *2nd International Conference on Multi-scale Computational Methods for Solids and Fluids (ECCOMAS MSF)*, 10-12 June 2015, Sarajevo, Bosnia and Herzegovina.
- “Exploring metrics on the evaluation of the bioclimatic potential at early stages of urban project”, R. Nahon, G. Besuievsky, E. Fernández, B. Beckers, O. Blanpain. *International conference CISBAT on “Future buildings and districts sustainability from nano to urban scale”*, September 9-11, 2015, EPFL - Lausanne, Switzerland.
- “Characterization of solar access in Mediterranean cities: oriented sky factor”, E. Garcia-Nevado, A. Pages-Ramon, H. Coch, B. Beckers, *Proc. International Conference on Passive and Low Energy Architecture. "PLEA 2015: Architecture in (R)Evolution – 31st International PLEA Conference – Bologna 9-11 September: full papers"*. Bologna: Building Green Futures, p. 1-7 2015
- “Far-LoD: Level of Detail for Massive Sky View Factor Calculations in Large Cities”, D. Muñoz, B. Beckers, G. Besuievsky and G. Patow, *3rd Eurographics Workshop on Urban Data Modelling and Visualisation*, November 23, 2015, Delft, the Netherlands.
- “Modélisation de l'éclairage naturel dans les premières étapes d'un projet d'aménagement”, R. Nahon, B. Beckers, O. Blanpain, *34^{èmes} Rencontres de l'AUGC*, Université de Liège, Belgique, 25 au 27 mai 2016.

- “Why Urban Physics and Why in Ecuador”, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Sparse Matrix Solution for Computing Urban Radiation Exchange”, J. Aguerre, E. Fernández, G. Besuievsky, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Fast and accurate view factor generation”, B. Beckers, P. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Skyline-control Based LoD Generation for Solar Analysis in 3D Cities”, G. Besuievsky, B. Beckers, G. Patow, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “A study of solar access in Bogotá: the Las Nieves neighborhood”, R. Franco, P. Bright, J. Benitez, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Multiphysic Design of a Street Section”, C. Knopf-Lenoir, D. Muñoz, R. Nahon, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Sky Access versus Shading for Pedestrian Comfort in the Hot Tropical Climate of Jeddah”, B. Masoud, B. Beckers, H. Coch, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Impact of the anisotropy of the sky vault emissivity on the building envelope radiative budget”, R. Nahon, O. Blanpain, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “A robust smoothed voxel representation for the generation of finite element models for computational urban physics”, A. Rassineux, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Periodic 3D model to optimize urban shapes for solar radiation”, T. Vermeulen, C. Knopf-Lenoir, L. Merino, P. Villon, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Optimizing Window Shape for Daylighting: An Urban Context Approach”, E. Fernández, J.P. Aguerre, B. Beckers and G. Besuievsky, Eurographics Workshop on Urban Data Modelling and Visualisation, December 8, 2016, Liège, Belgium
- “Modélisation de l'éclairage naturel dans les premières étapes d'un projet d'aménagement”, R. Nahon, B. Beckers, O. Blanpain, 34èmes Rencontres de l'AUGC, Université de Liège, Belgique, 25 au 27 mai 2016
- “Why Urban Physics and Why in Ecuador”, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Sparse Matrix Solution for Computing Urban Radiation Exchange”, J. Aguerre, E. Fernández, G. Besuievsky, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Fast and accurate view factor generation”, B. Beckers, P. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Skyline-control Based LoD Generation for Solar Analysis in 3D Cities”, G. Besuievsky, B. Beckers, G. Patow, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “A study of solar access in Bogotá: the Las Nieves neighborhood”, R. Franco, P. Bright, J. Benitez, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Multiphysic Design of a Street Section”, C. Knopf-Lenoir, D. Muñoz, R. Nahon, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador
- “Sky Access versus Shading for Pedestrian Comfort in the Hot Tropical Climate of Jeddah”, B. Masoud, B. Beckers, H. Coch, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador

“Impact of the anisotropy of the sky vault emissivity on the building envelope radiative budget”, R. Nahon, O. Blanpain, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador

“A robust smoothed voxel representation for the generation of finite element models for computational urban physics”, A. Rassineux, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador

“Periodic 3D model to optimize urban shapes for solar radiation”, T. Vermeulen, C. Knopf-Lenoir, L. Merino, P. Villon, B. Beckers, First International Conference on Urban Physics, B. Beckers, T. Pico, S. Jimenez (Eds), 26 – 30 September, 2016, Quito – Galápagos, Ecuador

“Optimizing Window Shape for Daylighting: An Urban Context Approach”, E. Fernández, J.P. Aguerre, B. Beckers and G. Besuievsky, Eurographics Workshop on Urban Data Modelling and Visualisation, December 8, 2016, Liège, Belgium

“Façade design and energy demand: fenestration indexes from an urban approach”, Elena García-Nevado, Benoit Beckers, Helena Coch Roura, Isabel Crespo, PLEA 2017 Design to Thrive 2nd-5th July 2017, Edinburgh, Proceedings Volume III, 5230-5237

“Visualizing the infrared response of an urban canyon throughout a sunny day”, Benoit Beckers, José Pedro Aguerre, Gonzalo Besuievsky, Eduardo Fernández, Elena García Nevado, Christian La Borderie, Raphaël Nahon, WREN-WREC Med Green Forum–4, Firenze, Italy, 31st July–2nd August 2017

“Characterization of façade fenestration for energy studies within the “Eixample” urban tissue of Barcelona”, Elena García-Nevado, Benoit Beckers, Helena Coch, CISBAT 2017 6-8 September 2017, Lausanne, Switzerland, Energy Procedia 122 (2017) 397-402

“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)

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.

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).