

## Part A. PERSONAL INFORMATION

CV date		Feb 2020
First and Family name	Manuel Ruiz de Adana Santiago	
Passport, ID number		Age
Researcher numbers	Researcher ID	K-9185-2014
	Orcid code	0000-0002-7890-7505

Linked in	<a href="https://es.linkedin.com/in/manuelruizdeadana">https://es.linkedin.com/in/manuelruizdeadana</a>
publons	<a href="http://www.researcherid.com/rid/K-9185-2014">http://www.researcherid.com/rid/K-9185-2014</a>
ORCID	<a href="http://orcid.org/0000-0002-7890-7505">http://orcid.org/0000-0002-7890-7505</a>
ResearchGate	<a href="https://www.researchgate.net/profile/Manuel_Ruiz_de_Adana">https://www.researchgate.net/profile/Manuel_Ruiz_de_Adana</a>
Google	<a href="https://scholar.google.com/citations?user=c5RkRVcAAAAJ">https://scholar.google.com/citations?user=c5RkRVcAAAAJ</a>

### A.1. Current position

Name of University	University of Cordoba		
Department	Physical Chemistry and Applied Thermodynamics		
Address and Country	Building Da Vinci – Campus of Rabanales – Ctra Madrid-Cadiz km 396 14071 Córdoba (Spain)		
Phone number	+34 678740416	E-mail	<a href="mailto:manuelruiz@uco.es">manuelruiz@uco.es</a>
Current position	Associate Professor	From	2008
Espec. cód. UNESCO	2204; 330590: 3311		
Palabras clave	HVAC; Renewable cooling systems; Indoor Air		

### A.2. Education

PhD	University	Year
Doctorate in Industrial Engineering	University of La Rioja	2002

### A.3. JCR articles, h Index, thesis supervised...

- 3 period of 6 year research recognized by the national committee for the assessment of the research action (CNEAI).
- Last period of research recognized: 2013-2018. Regulation 5 de junio de 2019 by the national committee for the assessment of the research action (CNEAI).
- 5 Doctoral Thesis supervised in the last 5 years.
- 29 JCR research papers: (21Q1; 6Q2; 2Q3) .
- h-index: 10 (revised <https://publons.com/researcher/1751416/manuel-ruiz-de-adana/metrics/> a 4/2/2020 18:08 GMT).

## Part B. CV SUMMARY

Associate Professor, Department of Applied Thermodynamics, Polytechnic School of Industrial Engineering at University of Cordoba (Spain), member of Ashrae and Atecyr-Rehva.

His present research is related to energy efficiency of HVAC systems and indoor air topics. Renewable HVAC systems, Ventilate Facades and Green Roofs in buildings; Indoor Air and airborne cross infection risk between persons.

Experience in laboratory and field experiments and thermal and fluid mechanics measurement techniques. Professor at undergraduate, graduate, Master and Ph.D. courses. Supervisor of Ph.D. and M.Sc. students. Has got leadership and management experience by leading international and national research projects, and by organizing national conferences and courses. Published in peer reviewed journals.

## Part C. RELEVANT MERITS

### C.1. Publications (including books)

1. **JCR article (Q1).** F. Comino, J. Castillo González, F.J. Navas-Martos, M. Ruiz de Adana. **2020.** Experimental energy performance assessment of a solar desiccant cooling system in Southern Europe climates, *Applied Thermal Engineering* 165 (2020) 114579.  
<https://doi.org/10.1016/j.applthermaleng.2019.114579>.
2. **JCR article (Q1).** F.A. Berlanga, L. Liu, P.V. Nielsen, R.L. Jensen, Alexandre Costa, I. Olmedo, M. Ruiz de Adana. **2020.** Influence of the geometry of the airways on the characterization of exhalation flows. Comparison between two different airway complexity levels performing two different breathing functions, *Sustainable Cities and Society* 53 (2020) 101874.  
<https://doi.org/10.1016/j.scs.2019.101874>
- JCR article (Q2).** Jorge M. Llamas, David Bullejos, Manuel Ruiz de Adana. **2019.** Optimization of 100 MWe Parabolic-Trough Solar-Thermal Power Plants Under Regulated and Deregulated Electricity Market Conditions, *Energies* 2019, 12, 3973.  
<https://doi.org/10.3390/en12203973>
3. **JCR article (Q1).** Francisco J. Rodriguez-Lozano, Fernando León-García, M. Ruiz de Adana, Jose M. Palomares, J. Olivares. **2019.** Non-Invasive Forehead Segmentation in Thermographic Imaging, *Sensors* 2019, 19, 4096.  
<https://doi.org/10.3390/s19194096>
4. **JCR article (Q1).** F. Peci-López, F. Táboas, F. Comino, M. Ruiz de Adana. **2019.** Experimental study of overheating of an unglazed transpired collector façade under southern European summer conditions for four modes of operation, *Solar Energy*. 189 (2019) 194-206.  
<https://doi.org/10.1016/j.solener.2019.07.058>
5. **JCR article (Q1).** Olmedo, I.; Berlanga-Cañete, F. A.; Villafruela, J. M.; Ruiz de Adana, M. **2019.** Experimental variation of the personal exposure in a hospital room influenced by wall heat gains. *Energy and Buildings*. 2019: 154: 252-262.  
<https://doi.org/10.1016/j.buildenv.2019.03.008>
6. **JCR article (Q1).** Villafruela JM, Olmedo I, Berlanga FA, Ruiz de Adana M. **2019.** Assessment of displacement ventilation systems in airborne infection risk in hospital rooms. *PLoS ONE* 14(1): e0211390.  
<https://doi.org/10.1371/journal.pone.0211390>.
7. **JCR article (Q1).** F. Comino, D. Guijo-Rubio, M. Ruiz de Adana, C. Hervás-Martínez. **2019.** Validation of multitask artificial neural networks to model desiccant wheels activated at low temperature. *International Journal of Refrigeration*, 100, 434–442.  
<https://doi.org/10.1016/j.ijrefrig.2019.02.002>
8. **JCR article (Q2).** Jorge M. Llamas, David Bullejos, Manuel Ruiz de Adana. **2019.** Optimal Operation Strategies into Deregulated Markets for 50 MWe Parabolic Trough Solar Thermal Power Plants with Thermal Storage. *Energies* 2019, 12, 935.  
<https://doi.org/10.3390/en12050935>
9. **JCR article (Q1).** Francisco Comino, Samanta Milani, Stefano De Antonellis, Cesare Maria Joppolo, Manuel Ruiz de Adana. **2018.** Simplified performance correlation of an indirect evaporative cooling system: Development and validation. *International Journal of Refrigeration*, 88, 307-317.  
<https://doi.org/10.1016/j.ijrefrig.2018.02.002>
10. **JCR article (Q1).** Berlanga-Cañete, Félix Antonio; Ruiz De Adana-Santiago, Manuel. Olmedo, Inés; Villafruela, Jose Manuel; San Jose, Julio; Castro, Francisco. **2018.** Experimental assessment of different mixing air ventilation systems on ventilation performance and exposure to exhaled contaminants in hospital rooms. *Energy and Buildings*. 2018: 177: 207-219.  
<https://doi.org/10.1016/j.enbuild.2018.07.053>
11. **JCR article (Q1).** Berlanga FA, Ruiz de Adana M, Olmedo I, Villafruela JM., San José JF, Castro F. **2018.** Experimental evaluation of thermal comfort, ventilation performance indices and exposure to airborne contaminant in an airborne infection isolation room equipped with a displacement air distribution system, *Energy and Buildings*. 2018 158: 209–221.  
<https://doi.org/10.1016/j.enbuild.2017.09.100>

12. **JCR article (Q1).** F. Peci, F. Comino, M. Ruiz de Adana. **2018**. Performance of an unglazed transpire collector in the facade of a building for heating and cooling in combination with a desiccant evaporative cooler. *Renewable Energy* 122 (2018) 460-471. <https://doi.org/10.1016/j.renene.2018.01.029>
13. **JCR article (Q1).** F. Comino, M. Ruiz de Adana, F. Peci. **2017**. Energy saving potential of a hybrid HVAC system with a desiccant wheel activated at low temperatures and an indirect evaporative cooler in handling air in buildings with high latent loads, *Applied Thermal Engineering*, 131: 412-427. <https://doi.org/10.1016/j.applthermaleng.2017.12.004>
14. **JCR article (Q1).** Berlanga-Cañete, Félix Antonio; Olmedo-Cortés, Inés; Ruiz De Adana-Santiago, Manuel. **2016**. Experimental analysis of the air velocity and contaminant dispersion of human exhalation flows. *Indoor Air*. 2016: 1-13. <http://dx.doi.org/10.1111/ina.12357>
15. **JCR article (Q1).** Comino-Montilla, Francisco; Comino, F.; Comino, F.; Peci, F. **2016**. First and second order simplified models for the performance evaluation of low temperature activated desiccant wheels. *Energy and Buildings*. 116: 574-582. <http://dx.doi.org/10.1016/j.enbuild.2016.02.005>
16. **JCR article (Q1).** F. Comino, M. Ruiz de Adana. **2016**. Experimental and numerical analysis of desiccant wheels activated at low temperatures. *Energy and Buildings*. 133: 529–540. <http://dx.doi.org/10.1016/j.enbuild.2016.10.021>
17. **Book chapter.** Ruiz de Adana Santiago, Manuel. *Fundamentals of Natural Ventilation in Buildings. Efficient Architecture Volume I*. Editor University of Basque Country. 2012. I.S.B.N. 978-84-9860-688-1.

#### C.4. International conferences

1. **International conference.** F. Comino, F. Peci, M. Ruiz de Adana. **(2019)**. Very low energy consumption HVAC systems for NZEB buildings. The potential of indirect evaporative coolers in South European climates. *International Conference on Green Construction ICGC 2019*, April 8-9, 2019 Córdoba (Spain).
2. **International conference.** F. Peci, F. Comino, M. Ruiz de Adana, F. Taboas. **(2019)**. Testing overheating in an unglazed transpired collector in the summer season. *International Conference on Green Construction ICGC 2019*, April 8-9, 2019 Córdoba (Spain).
3. **International conference.** M. Porcaro, M. Ruiz de Adana, F. Comino, A. Peña, E. Martín-Consuegra, T. Vanwalleghem. **(2019)**. Energy saving potential of green roofs in South European climates. *International Conference on Green Construction ICGC 2019*, April 8-9, 2019 Córdoba (Spain).
4. **International conference.** F.A. Berlanga, I. Olmedo, M. Ruiz de Adana. **(2018)**. Experimental measurements of the exposure to exhaled contaminants from different breathing modes. *Track 4 – Applications: Hospital Ventilation and Infection Control (HV1). Roomvent & Ventilation 2018*, 2-5 June 2018. Aalto University, Espoo, Finland.
5. **International conference.** F.A. Berlanga, M.R. de Adana, I. Olmedo. **(2017)** Influence of the breathing function on the airborne cross-infection risk in a hospital environment, in: *IFHE-EU 2017 European Conf. Hosp. Eng.*, Bologna, Italy,,: pp. 29–31.
6. **International conference.** Félix Berlanga, Inés Olmedo, Manuel Ruiz de Adana. **(2017)**. Can contaminant air quality indices be used to analyze the risk of airborne cross infections in hospital environments?. 2017. *AIVC International Workshop on IAQ Metrics*, INIVE EEIG, 14-15 March 2017, Brussels.
7. **International conference.** F. A. Berlanga, I. Olmedo, M. Ruiz de Adana, F. Peci. **(2016)**. Influence of the air renovation rate on the risk of cross infections in a hospital room with a combined radiant and mixing ventilation system. *Heiselberg, P. K. (Ed.) (2016). CLIMA 2016 Proceedings of the 12th REHVA World Congress: volume 5*. Aalborg: Aalborg University, Department of Civil Engineering.

## C.2. Research projects and grants

### C.2.1. Research Projects (ongoing Research Projects)

1. **Research Project.** WEDISTRICT. Smart and local renewable Energy DISTRICT heating and cooling solutions for sustainable living. H2020-WIDESPREAD2018-03-857801. H2020-LC-SC3-2018-2019-2020 (BUILDING A LOW-CARBON, CLIMATE RESILIENT FUTURE: SECURE, CLEAN AND EFFICIENT ENERGY) Topic: LC-SC3-RES-8-2019 Type of action: IA Proposal. PI Ruiz de Adana-Santiago, Manuel. **2019-2021. 458,781.25€.**
2. **Research Project.** BIORISK. Bioaerosols in hospital environments. Control and evaluation of the risk of exposure. RTI2018-094703-B-100. Ministry of Economy and Competitiveness, Ministry of Research, Development and Innovation (Spain). Retos 2018. PI Ruiz de Adana-Santiago, Manuel. **2019-2021. 119,790€.**

### C.3. Contracts

1. **Contract.** ESATEX: Sensory study in ATEX environment. Ref. 12018053, BODEGAS FUNDADOR S.L.U. Andalucía **2018-2019.** 18,650€.
2. **Contract.** SOLPLAS: Research of secondary equipment coupled to the solar concentrator. Ref. 12017251, Fundación Andaltec I+D+i. Andalucía **2018-2018.** 4,000€.
3. **Contract.** Optimizing the potential of green roofs for energy rehabilitation of buildings: interaction between substrates recycled, water properties and energy efficiency.. GGI3003IDIB. Secretary General of Housing and Rehabilitation. Junta de Andalucía (Spain). **2014-2015.** 101,309€.
4. **Contract.** Research of the influence of wine losses during ageing of wine in Spanish oak barrels with wine from salaam grapes, WINELOC. Ref. OTRI-OTEM 12013102, Centre for Technological and Industrial Development, CDTI, Ministry of Economy and Competitiveness, Government of Spain. Ref IDI20140139 (Spain). PI Ruiz de Adana-Santiago, Manuel. **2013-2016.** 105,309€.
5. **Contract.** Wireless monitoring of Patients in Hospital Facilities. Ref. P11-TIC-7462, Research Projects of Excellence. Ministry of Economy, Innovation and Science. Junta de Andalucía **2013-2016.** 102,286€.
6. **Contract.** Research and technological development in dual circuit reversible air conditioning with alternative refrigerant, NATURCOOL. Ref. OTRI-OTEM 12013106, Technological Corporation of Andalusia and CIAT-CIATESA (Spain). PI Ruiz de Adana-Santiago, Manuel. **2013-2016.** 69,374€.
7. **Contract.** Research and technological development in new systems for air dehumidification and drying process integrated in new HVAC systems DESSECA. Ref. OTRI-OTEM 12012163, Technological Corporation of Andalusia and CIAT-CIATESA (Spain). PI Ruiz de Adana-Santiago, Manuel. **2012-2016.** 81,535€.

### C.5, C.6, C.7... (e. g., Institutional responsibilities, memberships of scientific societies...)

International Scientific Committee Member. 12th REHVA World Congress 2016.

<http://www.clima2016.org/international-scientific-committee.aspx>.

International Scientific Committee Member. Roomvent Ventilation 2020.

<http://roomvent2020.org/committee/>

Associate Editor International Journal of Contemporary Energy ISSN: 2363-644

<http://contemporary-energy.net/Editorial-Board/editorial-board.html>.

Reviewer Journal Construction and Building Materials ISSN: 0950-0618.

Award. Knowledge Transfer to Industrial Companies (4th edition) for the Project: "Development of control strategies for HVAC systems". December **2013.** University of Cordoba.

Award. Prize Business Ideas Competition (6th edition) for the project: "Solar Cooling". Advisory Committee on Transfer and Innovation at the University of Cordoba. November **2012.** University of Cordoba.