Europass Curriculum Vitae

Updated April 22, 2021

Personal information

Surname / First name	**Dias, António**
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Personal Email	amcbd89@gmail.com
Nationality	Portuguese
Date of birth	November 21, 1989
Gender	Male

Education

2007 – 2012	Master of Physics Engineering, Instituto Superior Técnico, Lisbon, Portugal
2014 – 2020	Doctor of Physics Engineering, Universidade de Lisboa, Lisbon, Portugal

PhD Thesis

• Title	*Research and Development of a General Purpose Instrument DAQ-Monitoring Platform applied to the CLOUD/CERN experiment*
• Supervisors	António Amorim
• Description	Development of general purpose data aqcuisition system for plug-and-play instrumentation. Implementation of said system on the CLOUD experiment at CERN. Evaluation of results and identifying oportunities and improvements

Master Thesis

• Title	*Modeling of Low Pressure Plasmas in CH4-H2 Mixtures*
• Supervisors	Luís Lemos Alves
• Description	Collisional-radiative (0-dimensional) study of methane-hydrogen study. Various kinetic pathways were reviewed and updated. Results were simulated for several experimental parameters (input power, neutral gas flow and discharge composition). A study of charged species in ambipolar electric fields is also preformed and an updated method of calculating edge to center rations of charge species density is proposed.

Experience

2016–2017	Data acquisition consultant at the CLOUD experiment, Centre Européen pour la Recherche Nucléaire (CERN), Switzerland
2013–2016	Marie Curie Fellow - CLOUD experiment data acquisition expert, Centre Européen pour la Recherche Nucléaire (CERN), Switzerland
2019	Full-stack software developer & mentor - Mov.AI, Portugal
2020 - current	Full-stack developer & IoT architect - Lifepowr, Belgium

Languages

Mother tongue

Portuguese

Self-assessment *European level*(⋆)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user
French	B2 Independent user	B2 Independent user	A2 Basic user	A2 Basic user	A2 Basic user
Spanish	B2 Independent user	B2 Independent user	B2 Independent user	B2 Independent user	B2 Independent user

(⋆) *Common European Framework of Reference (CEF) level*

Relevant skills

OS	Linux, Unix, Windows
Programming	C/C++, PHP, Shell, Python, JavaScript
Scientific	R, Matlab, Autocad, LaTeX, Solid Works
Web front-end	HTML, CSS, jQuery, React (Hooks & Classes), Webpack, Vue, Material UI, Bootstrap, D3, webGL, internationalization
Web back-end	Flask, Dajngo, AioHTTP, NodeJS, Celery, ZeroMQ, Websockets, GraphQL, HTTPS compliance, AWS (Lambda, API-Gateway, S3, EC2)
Storage	MySQL, Postgres, Oracle, MSSQL, Redis, MongoDB, AWS (DynamoDB, Timestream)
Administration	Apache, Nginx, JWT, oAuth, AWS ecosystem

Interests

Professional Interests	Leveraging web technologies to provide the most useful data with the least ammount of effort for users.
Private Interests	Tinkering with electronics and remote sensing/actuating enabled via Web. Developing web applications to solve shortcommings in everyday life.
Sports	Avid swimmer & scuba diver. Team sports - footbal, voleyball, water polo
Travelling	Aiming to visit every country in the world.

Publications

[1] A. Dias, A. Amorim, and A. Tomé. Daqbroker - a general purpose instrument monitoring framework. In *23rd International Conference on Computing in High Energy and Nuclear Physics*, July 2018. Under publication.

[2] C. Frege, I. K. Ortega, M. P. Rissanen, A. P. Praplan, G. Steiner, M. Heinritzi, L. Ahonen, A. Amorim, A.-K. Bernhammer, F. Bianchi, S. Brilke, M. Breitenlechner, L. Dada, A. Dias, J. Duplissy, S. Ehrhart, I. El-Haddad, L. Fischer, C. Fuchs, O. Garmash, M. Gonin, A. Hansel, C. R. Hoyle, T. Jokinen, H. Junninen, J. Kirkby, A. Kürten, K. Lehtipalo, M. Leiminger, R. L. Mauldin, U. Molteni, L. Nichman, T. Petäjä, N. Sarnela, S. Schobesberger, M. Simon, M. Sipilä, D. Stolzenburg, A. Tomé, A. L. Vogel, A. C. Wagner, R. Wagner, M. Xiao, C. Yan, P. Ye, J. Curtius, N. M. Donahue, R. C. Flagan, M. Kulmala, D. R. Worsnop, P. M. Winkler, J. Dommen, and U. Baltensperger. Influence of temperature on the molecular composition of ions and charged clusters during pure biogenic nucleation. *Atmospheric Chemistry and Physics*, 18(1):65–79, 2018.

[3] A. Dias, S. Ehrhart, A. Vogel, C. Williamson, J. Almeida, J. Kirkby, S. Mathot, S. Mumford, and A. Onnela. Temperature uniformity in the cern cloud chamber. 10(12):5075–5088.

[4] A. Dias, A. Amorim, and A. Tomé. CLOUDCLOUD : general-purpose instrument monitoring and data managing software. In *EGU General Assembly Conference Abstracts*, volume 18 of *EGU General Assembly Conference Abstracts*, page 13410, April 2016.

[5] Jasmin Tröstl, Wayne K. Chuang, Hamish Gordon, Martin Heinritzi, Chao Yan, Ugo Molteni, Lars Ahlm, Carla Frege, Federico Bianchi, Robert Wagner, Mario Simon, Katrianne Lehtipalo, Christina Williamson, Jill S. Craven, Jonathan Duplissy, Alexey Adamov, Joao Almeida, Anne-Kathrin Bernhammer, Martin Breitenlechner, Sophia Brilke, Antònio Dias, Sebastian Ehrhart, Richard C. Flagan, Alessandro Franchin, Claudia Fuchs, Roberto Guida, Martin Gysel, Armin Hansel, Christopher R. Hoyle, Tuija Jokinen, Heikki Junninen, Juha Kangasluoma, Helmi Keskinen, Jaeseok Kim, Manuel Krapf, Andreas Kürten, Ari Laaksonen, Michael Lawler, Markus Leiminger, Serge Mathot, Ottmar Möhler, Tuomo Nieminen, Antti Onnela, Tuukka Petäjä, Felix M. Piel, Pasi Miettinen, Matti P. Rissanen, Linda Rondo, Nina Sarnela, Siegfried Schobesberger, Kamalika Sengupta, Mikko Sipilä, James N. Smith, Gerhard Steiner, Antònio Tomè, Annele Virtanen, Andrea C. Wagner, Ernest Weingartner, Daniela Wimmer, Paul M. Winkler, Penglin Ye, Kenneth S. Carslaw, Joachim Curtius, Josef Dommen, Jasper Kirkby, Markku Kulmala, Ilona Riipinen, Douglas R. Worsnop, Neil M. Donahue, and Urs Baltensperger. The role of low-volatility organic compounds in initial particle growth in the atmosphere. *Nature*, 533(7604):527–531, may 2016.

[6] Jasper Kirkby, Jonathan Duplissy, Kamalika Sengupta, Carla Frege, Hamish Gordon, Christina Williamson, Martin Heinritzi, Mario Simon, Chao Yan, João Almeida, Jasmin Tröstl, Tuomo Nieminen, Ismael K. Ortega, Robert Wagner, Alexey Adamov, Antonio Amorim, Anne-Kathrin Bernhammer, Federico Bianchi, Martin Breitenlechner, Sophia Brilke, Xuemeng Chen, Jill Craven, Antonio Dias, Sebastian Ehrhart, Richard C. Flagan, Alessandro Franchin, Claudia Fuchs, Roberto Guida, Jani Hakala, Christopher R. Hoyle, Tuija Jokinen, Heikki Junninen, Juha Kangasluoma, Jaeseok Kim, Manuel Krapf, Andreas Kürten, Ari Laaksonen, Katrianne Lehtipalo, Vladimir Makhmutov, Serge Mathot, Ugo Molteni, Antti Onnela, Otso Peräkylä, Felix Piel, Tuukka Petäjä, Arnaud P. Praplan, Kirsty Pringle, Alexandru Rap, Nigel A. D. Richards, Ilona Riipinen, Matti P. Rissanen, Linda Rondo, Nina Sarnela, Siegfried Schobesberger, Catherine E. Scott, John H. Seinfeld, Mikko Sipilä, Gerhard Steiner, Yuri Stozhkov, Frank Stratmann, Antonio Tomé, Annele Virtanen, Alexander L. Vogel, Andrea C. Wagner, Paul E. Wagner, Ernest Weingartner, Daniela Wimmer, Paul M. Winkler, Penglin Ye, Xuan Zhang, Armin Hansel, Josef Dommen, Neil M. Donahue, Douglas R. Worsnop, Urs Baltensperger, Markku Kulmala, Kenneth S. Carslaw, and Joachim Curtius. Ion-induced nucleation of pure biogenic particles. *Nature*, 533(7604):521–526, may 2016.

[7] C. R. Hoyle, C. Fuchs, E. Järvinen, H. Saathoff, A. Dias, I. El Haddad, M. Gysel, S. C. Coburn, J. Tröstl, A.-K. Bernhammer, F. Bianchi, M. Breitenlechner, J. C. Corbin, J. Craven, N. M. Donahue, J. Duplissy, S. Ehrhart, C. Frege, H. Gordon, N. Höppel, M. Heinritzi, T. B. Kristensen, U. Molteni, L. Nichman, T. Pinterich, A. S. H. Prévôt, M. Simon, J. G. Slowik, G. Steiner, A. Tomé, A. L. Vogel, R. Volkamer, A. C. Wagner, R. Wagner, A. S. Wexler, C. Williamson, P. M. Winkler, C. Yan, A. Amorim, J. Dommen, J. Curtius, M. W. Gallagher, R. C.

Flagan, A. Hansel, J. Kirkby, M. Kulmala, O. Möhler, F. Stratmann, D. R. Worsnop, and U. Baltensperger. Aqueous phase oxidation of sulphur dioxide by ozone in cloud droplets. *Atmospheric Chemistry and Physics*, 16(3):1693–1712, 2016.

[8] K. Ignatius, T. B. Kristensen, E. Järvinen, L. Nichman, C. Fuchs, H. Gordon, P. Herenz, C. R. Hoyle, J. Duplissy, S. Garimella, A. Dias, C. Frege, N. Höppel, J. Tröstl, R. Wagner, C. Yan, A. Amorim, U. Baltensperger, J. Curtius, N. M. Donahue, M. W. Gallagher, J. Kirkby, M. Kulmala, O. Möhler, H. Saathoff, M. Schnaiter, A. Tomé, A. Virtanen, D. Worsnop, and F. Stratmann. Heterogeneous ice nucleation of viscous secondary organic aerosol produced from ozonolysis of α-pinene. *Atmospheric Chemistry and Physics*, 16(10):6495–6509, 2016.

[9] A. M. Dias, J. Almeida, J. Kirkby, S. Mathot, A. Onnela, A. Vogel, and S. Ehrhart. Temperature characterisation of the CLOUD chamber at CERN. *AGU Fall Meeting Abstracts*, December 2014.

[10] A. Dias, J. Almeida, A. Amorim, A. David, A. Tomé, and CLOUD Collaboration. The cloud data acquisition system and online derivation of nucleation rates. *AIP Conference Proceedings*, 1527(1):393–396, 2013.