Curriculum Vitae

Anabel del Val, 29, Spanish
Chaussée de Boondael 234, 1050 Brussels, Belgium
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Education

Sep. 2017-Present	**PhD student in Aerospace Engineering** École Polytechnique, Institut Polytechnique de Paris, France (external) and von Karman Institute for Fluid Dynamics, Belgium
Sep. 2015	**BSc+MSc in Aerospace Engineering** Universidad Politécnica de Madrid, Spain

Positions

Sep. 2017 - present	**PhD researcher** Aeronautics and Aerospace Department von Karman Institute for Fluid Dynamics, Belgium
Feb. 2018 - present	**PhD researcher** Platon Team INRIA Saclay Île-de-France, France
Sep. 2017 - Sep. 2020	**Marie Sklodowska-Curie Actions Early Stage Researcher** UTOPIAE ITN von Karman Institute for Fluid Dynamics, Belgium
Oct. 2019 - Nov. 2019	**Visiting researcher** Department of Mathematical Sciences Durham University, UK
Jun. 2016 - Dec. 2016	**Researcher** Departamento de Mecánica de Fluidos y Propulsión Aeroespacial ETSIAE, UPM, Spain
Sep. 2015 - May. 2016	**Applied Research Intern** von Karman Institute for Fluid Dynamics, Belgium
Jul. 2014 - Sep. 2014	**Master Thesis Intern** von Karman Institute for Fluid Dynamics, Belgium
Jul. 2012 - Sep. 2012	**Summer Intern** Ala 11, Morón de la Frontera, Seville, Spain

Funding and Awards

2020 Amelia Earhart Fellowship

2019 2nd position Best Student Paper Award Competition
Structures and Materials category, EUCASS 2019

2017 Marie Sklodowska-Curie Actions ITN UTOPIAE
European Commission

2015 Applied Research Oriented Program Fellowship
von Karman Institute for Fluid Dynamics

2014 Short Training Program Fellowship
von Karman Institute for Fluid Dynamics

2012 Spanish Air Force Fellowship
ETSIA, Universidad Politécnica de Madrid

Publications

- **Book chapters**

  A. del Val, O. Chazot, T. E. Magin. Uncertainty Treatment Applications: High-Enthalpy Flow Ground Testing, In *Optimization Under Uncertainty with Applications to Aerospace Engineering*, Ed. M. Vasile, Springer Nature 2020

- **Technical notes**

  A. del Val, T. E. Magin, O. Chazot. Uncertainty Assessment on Experimental Data, ESA TRP Characterization of High Enthalpy Facilities and Streamlining of Calibration and Tests (CHEF)

- **Conference papers**

  A. del Val, O. P. Le Maître, O. Chazot, P. M. Congedo, T. E. Magin. Inference methods for gas/surface interaction models: from deterministic approaches to Bayesian techniques. *Uncertainty Quantification & Optimization 2020* conference proceedings.

  D. Luis, **A. del Val**, O. Chazot. Characterization under Uncertainty of Catalytic Phenomena in Ceramic Matrix Composites Materials for Spacecraft Thermal Protection Systems, 8th European Conference for Aeronautics and Aerospace Sciences (EUCASS), Madrid, June 2019. **Shortlisted for best student paper award**

  B. Arizmendi, T. Bellosta, **A. del Val**, G. Gori, J. Reis, M. Prazeres. On Real-time Management of On-board Ice Protection Systems by means of Machine Learning, AIAA AVIATION Forum, Dallas, June 2019

  A. del Val, T. E. Magin, O. Chazot. Uncertainty Assessment on the Characterization of Testing Conditions in Arc-jet Facilities, 33rd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, AIAA AVIATION Forum, Denver, June 2017

A. del Val, T. E. Magin, B. Dias, O. Chazot. Characterization of Ground Testing Conditions in High Enthalpy and Plasma Wind Tunnels for Aerospace Missions, 8th European Symposium on Aerothermodynamics for Space Vehicles, Lisbon, March 2015

- **Theses**

  A. del Val. "Characterization of Ground Testing Conditions in High Enthalpy and Plasma Wind Tunnels for Aerospace Missions". Master thesis. VKI and Universidad Politécnica de Madrid, Madrid, Spain

Invited Seminars

1. **A. del Val**. Bayes goes to Space: inferring chemical model parameters for tomorrow's Space journeys. Stats4Grads, Durham University, Durham, UK, 6 Nov 2019.

2. **A. del Val**. Characterization of spacecraft reusable heatshield materials from plasma wind tunnel experiments: a Bayesian inference approach. ETSIAE, UPM, Madrid, Spain, 1 Oct 2018.

3. **A. del Val**. Stochastic inference of the catalytic properties of thermal protection materials from plasma wind tunnel experiments . *Entry Systems and Technology Division Seminar*, NASA Ames Research Center, Moffet Field, CA, 30 August 2018.

International Meetings, Presentations, and Posters

1. **A. del Val**. Development of Probabilistic Data-Informed Gas/Surface Interaction Models for Atmospheric Entry Flows. UTOPIAE Local Training Workshop II, Politecnico di Milano, Milan, Italy, 12 Feb 2020.

2. **A. del Val**, A Bayesian perspective on TPS catalysis phenomena: learning from experiments and proposing new ones, VKI PhD Symposium, 18-20 May 2020

3. **A. del Val**, O. P. Le Maître, O. Chazot, T. E. Magin, P. M. Congedo. On the Inference of Chemical Model Parameters for Tomorrow's Space Journeys: an Overview on Reusable and Ablative Space Systems. Presentation at *Optimization in Space Engineering (OSE5)*, Ljubljana, November 2019

4. **A. del Val**, O. P. Le Maître, O. Chazot, T. E. Magin, P. M. Congedo. Bayesian Calibration of Gas/Surface Interaction Models for Thermal Protection Materials under Spacecraft Reentry Conditions. Presentation at *ICIAM 2019*, Valencia University, Valencia, Spain, 15-19 July 2019.

5. **A. del Val**, O. P. Le Maître, O. Chazot, T. E. Magin, P. M. Congedo. Robust calibration of the catalytic properties of thermal protection materials: Application to plasma wind tunnel experiments. Presentation at the *Uncertainty Quantification & Optimization Conference*, Sorbonne University, Paris, France, 18-20 March 2019.

6. **A. del Val**, Towards a Systematic Framework for the Design of Experiments: Application to Catalytic Phenomena in Plasma Wind Tunnels, VKI PhD Symposium, 11-13 March 2019

7. **A. del Val**, O. P. Le Maître, O. Chazot, T. E. Magin, P. M. Congedo. Stochastic inference of the catalytic properties of thermal protection materials from plasma wind tunnel experiments. Presentation at the *7th European Conference on Computational Fluid Dynamics*, ECCOMAS, Glasgow, UK, 11-15 June 2018.

8. **A. del Val**, Preliminary thoughts on stochastic inference of the catalytic properties of thermal protection materials from plasma wind tunnel experiments, VKI PhD Symposium, 5-7 March 2018

Involvement in Contracts and Projects

- Team Member (VKI): "CHEF: Characterization of High Enthalpy Facilities and Streamlining of Calibration and Tests." Task 7: Uncertainty Assessment on Experimental Data, ESA AO/1-7205/12/NL/CP.

Manuscripts Accepted, Submitted or Under Preparation

1. **A. del Val**, O. P. Le Maître, O. Chazot, T. E. Magin, P. M. Congedo. A surrogate-based optimal likelihood function for the Bayesian calibration of catalytic recombination in atmospheric entry protection materials. (Under review)

2. **A. del Val**, D. Luis, O. Chazot. Characterization under uncertainty of catalytic efficiencies in ceramic matrix composite materials for spacecraft thermal protection systems. (Submitted)

3. **A. del Val**, O. P. Le Maître, P. M. Congedo, T. E. Magin. Investigation of graphite ablation in nitrogen plasma flows using a Bayesian formulation. (Under preparation)

4. **A. del Val**, O. P. Le Maître, P. M. Congedo, T. E. Magin. Impact of flow modeling choices on the calibration of nitridation efficiencies and model selection through Bayesian evidence. (Under preparation)

Supervising and Mentoring Activities

- Master Students (2): co-supervised 2 students at VKI.
- Student interns (4): supervised 4 short internships at VKI.

Teaching Activities

Spring 2016 **Teaching Assistant** for STS Master students from La Sapienza University, Rome:
Uncertainty Quantification in Experimental and Computational Fluid Dynamics
Aeronautics and Aerospace Department, VKI

Spring 2016 **Teaching Assistant** for the Sail course with Purdue University students:
Uncertainty Quantification in Experimental and Computational Fluid Dynamics
Aeronautics and Aerospace Department, VKI

Fall 2015 **Teaching Assistant**: *Measurement Techniques Labs*
Aeronautics and Aerospace Department, VKI

Outreach Activities

Fall 2020 **AeroDynamic Women**
Weekly Q&A highlighting women in Aerodynamics & Fluid Dynamics

Spring 2020 **MSCA Fellow of the Week**
Featured as Marie Sklodowska-Curie Actions Fellow

Spring 2019 **Pint of Science Belgium**
Atoms to Galaxies events organiser

Spring 2019 **SpaceWeek @ L'École Polytechnique**
Applied Math Department representation

Fall 2018 **Pinguino Lecture Series**
von Karman Institute for Fluid Dynamics

Spring 2018 **UTOPIAE Meet the Expert**
Glasgow Science Centre