

PABLO FERNÁNDEZ DEL CAMPO

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EDUCATION

University of Valladolid, Valladolid, Spain

Industrial Engineer's degree (5-year program), 2013.

- Top student in the College of Industrial Engineering (class of 2013).
- Visiting student at SDSU Solar Energy and Combustion Laboratory (San Diego, CA, USA) from Sep 2012 to Jun 2013. Also taken graduate courses in Mechanical and Aerospace Engineering (GPA: 4.00/4.00)
- Thesis: "Numerical-Stochastic Modeling, Simulation and Design Optimization of Small Particle Solar Receivers for Concentrated Solar Power Plants". Score: 10/10 (High Distinction)

B.S. in Mechanical Engineering, 2014 (expected).

RESEARCH AND WORK EXPERIENCE

Cidaut R&D Center, Valladolid, Spain

Research Engineer and Project Engineer

Aug 2013 – Present

- Participation in several in-house, European and international projects. Responsibilities include project management, research, development and design of different systems.
- Development of maglev trains for public transportation in the U.S., Puerto Rico and Brazil.
- Development and industrialization of new, high optical quality heliostats for solar tower power plants.

SDSU Solar Energy and Combustion Laboratory, San Diego, CA, USA

Research Assistant

Sep 2012 – Jun 2013

- Responsible for the numerical modeling and design optimization of a high-temperature solar receiver in a \$4M project funded by the U.S. Department of Energy.
- Development of a coupled fluid dynamics and radiative heat transfer model for small particle solar receivers (over 12,500 lines of code in C and FORTRAN).
- Improvement of Monte Carlo methods for radiative heat transfer. Achievement of two orders of magnitude speed-up.
- Analysis of gas turbine-driven CSP plants (coupled gas turbine and receiver model).

Cidaut R&D Center, Numerical Modeling Group, Valladolid, Spain

CFD Engineer Intern

Jun 2012 – Sep 2012

- Participation in two in-house and European projects.
- CFD modeling and development of in-house codes to simulate and optimize the design of different systems.
- Evaluation of thermal energy storage systems for CSP plants.

Heat Engines Laboratory, University of Valladolid, Valladolid, Spain

Research Assistant

Dec 2011 – Jun 2012

- Development, programming and optimization of Genetic Algorithms to optimize combustion studies in heat engines.
- Turbulent burning velocity and pollutant emission studies in spark-ignition engines.
- Experimental engine testing.

AWARDS

Research and Academic Awards

- Dean's Award, SDSU Student Research Symposium, 2013
- Finalist in the Spanish Engineering Competition, *BEST*, team of four undergraduates, 2012
- First prize in the Valladolid Engineering Competition, *BEST*, team of four undergraduates, 2011
- San Agustín High School Extraordinary Award (ranked 1st/120 students), 2007

Fellowships

- "la Caixa" Fellow (full merit-based scholarship for graduate studies in the U.S. from 2014 to 2016), 2013
- Grant for Research Projects, *University of Valladolid Foundation*, 2012
- International Mobility Fellowship, *University of Valladolid*, 2012
- Scholarship award throughout undergraduate studies for outstanding academic achievement, 2008-2013.

Other recognitions

- Selected for the General Assembly 2013, *BEST* (120 top engineering undergraduates selected from 94 European Universities).

JOURNAL ARTICLES IN PREPARATION

4. **P. Fernández**, F. Miller, A. Crocker. “Application and optimization of the Monte Carlo method for the radiation heat transfer in axisymmetric geometries”, in preparation for submission to *International Journal of Heat and Mass Transfer*.
3. **P. Fernández**, F. Miller. “Design optimization of a Small Particle Heat Exchange Receiver for solar tower power plants”, in preparation for submission to *Solar Energy*.
2. A. Crocker, F. Miller, **P. Fernández**. “Coupled Fluid Flow and Radiation Modeling of a Cylindrical Small Particle Solar Receiver”, in preparation for submission to *Journal of Heat Transfer*.
1. **P. Fernández**, F. Miller. “Analysis of a Solar-Hybrid Gas Turbine System based on a Small Particle Heat Exchange Receiver”, in preparation for submission to *Journal of Solar Energy Engineering*.

REFEREED CONFERENCE PUBLICATIONS

3. **P. Fernández**, F. Miller, M. McDowell, A. Hunt. “Design space exploration of a 5 MW_{th} Small Particle Solar Receiver”, *19th SolarPACES International Conference*, Las Vegas, NV, USA, 2013.
2. **P. Fernández**, F. Miller. “Assessment of the overall efficiency of gas turbine-driven CSP plants using small particle solar receivers”, *19th SolarPACES International Conference*, Las Vegas, NV, USA, 2013.
1. **P. Fernández**, F. Miller, A. Crocker. “Three-Dimensional Fluid Dynamics and Radiative Heat Transfer Modeling of a Small Particle Solar Receiver”, *Proceedings of the ASME 2013 7th International Conference on Energy Sustainability*, Minneapolis, MN, USA, 2013.

SKILLS

Leadership

- Course of Leadership Styles, Michelin Spain-Portugal, 2011 (16 hours)
- Leader of the team of four undergraduates that represented the University of Valladolid in the Spanish Engineering Competition, *BEST*, 2012.

Entrepreneurship and enterprise

- Course of Project Management, Michelin Spain-Portugal, 2011 (32 hours)
- Course of Business Management, Michelin Spain-Portugal, 2011 (24 hours)

Technical skills

- Thermal sciences: Fluid mechanics; conductive, convective and radiative heat transfer; thermodynamics.
- Applied and computational mathematics: Numerical analysis, numerical methods for ODEs and PDEs, optimization, stochastic modeling, Monte Carlo simulation.
- Renewable energies: solar power, thermal energy storage, thermochemical conversion.

Computer skills

- Operating systems: Windows, UNIX/Linux, Mac OS
- Programming languages: C/C++, FORTRAN, MATLAB, Python, Mixed Programming
- Software: ANSYS Fluent (including UDF programming), MATLAB, Simulink, Maple, Mathematica, CATIA V5, SolidWorks, OptiCAD, Microsoft Word, Microsoft Excel, Microsoft Power-Point

Languages

Spanish (native), English (fluent), French (elementary)

FURTHER INFORMATION

Reviewer in the *19th SolarPACES International Conference*.

One-month academic exchange program with Milford High School (Milford, MA, USA), 2005

Basketball coach for 2 years. Honors:

- First place in the 2008/09 U16 Valladolid Female Basketball Championship.
- Third place in the 2008/09 U16 Castile and León Female Basketball Championship.

Leisure activities instructor in summer and spring break camps for 2 years.

Federated basketball player for 14 years.