

Dr. Antoine Bret - Curriculum

Universidad de Castilla-La Mancha (UCLM)

School of Industrial Engineering
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Short CV (long version below)

Associate Professor – *Universidad de Castilla-La Mancha*, Spain.

Full Professor Habilitation (HDR), *University Paris VI*, France, 2009

PhD Physics, *Orsay University*, France, 1994.

Engineer, *Supelec*, France, 1991.

Research in plasma physics theory. Stopping power, ICF, instabilities, collisionless shocks.

100+ peer-review papers. 25+ invited talks.

Frequent Visiting Scholar at the Harvard-Smithsonian Center for Astrophysics.

Associate Editor for *Journal of Plasma Physics* (Cambridge Press).

Chair of the BSAP Program for the 2017 EPS Conference on Plasma Physics (Belfast).

Participant in 10 grants. Co-PI of 1.

Advisor for 1 PhD Thesis and 15 Master Thesis (or equivalent).

Teaching on Energy and Climate issues since 2004.

Author of the textbook *The Energy-Climate Continuum: Lessons from Basic Science and History* (Springer, 2014).

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Associate Professor (Profesor Titular)

Education History

- 2009** **Full Professor Habilitation (HDR) - University Paris VI Jussieu, France**
Subject: Beam-plasma instabilities in the relativistic regime
Jury: J.M. Rax, R. Schlickeiser, R. Bingham, F. Amiranoff, G. Bonnaud, P. Mora, M. Tagger
- 1994** **PhD in Plasma Physics Theory - University Paris XI Orsay, France**
Advisor: Claude Deutsch - Suma Cum Laude.
Subject : Slowing down of clusters by an electron gas at any degeneracy
Jury: B. Jancovici, M. Fitaire, P. Sigmund, R. Rozet and F.I.B. Williams
- 1991** **Master Gas and Plasma Physics - University Paris XI Orsay, France**
- 1988-1991** **Electrical Engineer - Ecole Supérieure d'Electricité ("SUPELEC") – France**
- 1985-1988** **Preparation to competitive scientific examinations - Lycée Stanislas, Paris, France**
- Languages** - Fluent in French, English and Spanish

Positions History & Teaching

- 9/2004 -** **Visiting Prof., then Tenured Associate Prof. (from 2009) - UCLM, Spain**
Courses taught: Renewable Energies and Climate Change - 4 months course¹
Theory of Pumps and Turbines - 4 months course
- 10-11/2016** **Adjunct Professor, IE University – Madrid, Spain**
Advanced Seminar on "Tips you must know about Climate Change and Energy"
- 6-7/2016** **Visiting Scholar - Harvard-Smithsonian Center for Astrophysics - USA**
6-7/2014 "Salvador de Madariaga" Fellow (2012)
1-8/2012 Research and Plasma Physics Seminars (see arXiv:1205.6259)
- 2003-2004** **Oral Examiner in Mathematics - Lycée Stanislas – France**
Courses taught: First and Second year College level Mathematics
- 1994-1995** **Assistant Professor ("ATER", not Tenured) - University Paris XI Orsay – France**
Courses taught: Quantum Mechanics and Related Math – First year level
Plasmas Physics – Master level
- 1991-1995** **Teaching Assistant - University Paris XI Orsay – France**
Supervision of student's Lab work and Problems sessions
- 1991-1995** **Oral Examiner in Mathematics - Lycée Stanislas - Paris, France**
Courses taught: First and Second years College level Mathematics

¹ A textbook has been published from this course, *The Energy Climate Continuum, Lessons from Basic Science and History* (Springer, 2014)

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Research Grants & Projects

Grant ENE2016-75703-R from Spanish Science and Education Ministry

Participants R. Piriz (PI), A. BRET (co-PI), G. Wouchuk, G. Rodriguez.

Topic *Materia con alta densidad de energía en fusión por confinamiento inercial*

Grant PEII-2014-008-P from Castilla-La Mancha Science and Education Council

Participants G. Wouchuk (PI), R. Piriz, A. Bret, M. Barriga- Carrasco, F. Cobos-Campos, G. Rodriguez

Topic *Hidrodinámica de la fusión termonuclear por confinamiento inercial*

Grant ENE2013-45661-C2-1 from Spanish Science and Education Ministry

Participants R. Piriz (PI), G. Wouchuk (co-PI), A. Bret, G. Rodriguez, M. Barriga-Carrasco

Topic *Materia con alta densidad de energía en fusión inercial.*

“Salvador de Madariaga” Fellowship from Spanish Science and Education Ministry (2012) - PI

Visiting Scholar at Harvard-Smithsonian CfA

International Space Science Institute, Bern, Switzerland

A. Bykov	<i>Ioffe Institute, Russia</i>	M. Lemoine	<i>IAP, France</i>
M.E. Dieckman	<i>Linköping, Sweden</i>	A. Marcowith (PI)	<i>LPTA, France</i>
L’O.C. Drury, G. Murphy	<i>DIAS, Ireland</i>	G. Pelletier	<i>LAOG, France</i>
J.G. Kirk, B. Reville	<i>MPIK, Germany</i>	A. Spitkovsky, L. Sironi	<i>Princeton, Harvard</i>
B. Lembège	<i>CETP, France</i>	J. Vink	<i>Utrecht university</i>

Topic *Fermi shock acceleration process: from non-relativistic to ultra-relativistic shocks*

Grant ENE2009-09276 from Spanish Science and Education Ministry

Participants R. Piriz (PI), G. Wouchuk, A. Bret, C. Huete, G. Rodriguez, M. Barriga-Carrasco.

Topic *Materia con alta densidad de energía en fusión por confinamiento inercial.*

Grant FIS2006 from Spanish Science and Education Ministry

Participants R. Piriz (PI), M. Barriga-Carrasco, D. Cortazar, A. Bret.

Topic *Física de Plasmas con Alta Densidad de Energía*

Grant PAI08 from Castilla-La Mancha Science and Education Council

Participants G. Wouchuk (PI), A. Bret.

Topic *Fenómenos básicos en plasmas densos y a alta temperatura.*

Grant PAI05 from Castilla-La Mancha Science and Education Council

Participants G. Wouchuk (PI), A. Bret.

Topic *Inestabilidades en plasmas y fluidos.*

Grant FTN2003 from Spanish Science and Education Ministry

Participants R. Piriz (PI), M. Temporal, M. Barriga-Carrasco, D. Cortazar, A. Bret.

Topic *Inestabilidades hidrodinámicas en fusión por confinamiento inercial.*

Students Supervision²

2017 **Final Degree Project** - University Castilla la Mancha – Ciudad Real, Spain

Student: Elena Muñoz Escobar

Topic: Diseño y realización de una práctica de aerogenerador

2017 **Final Degree Project** - University Castilla la Mancha – Ciudad Real, Spain

Student: Daniel López Horcajada

Topic: Dimensionamiento de una instalación fotovoltaica híbrida con acumulación y grupo electrógeno auxiliar en una planta embotelladora de agua

² The topic of the work is in the language of the project.

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- 2016** **Final Degree Project** - University Castilla la Mancha – Ciudad Real, Spain
Student: Javier Ruiz Morales
Topic: Estudio de la viabilidad de producción de pellets de pino en Brasil para exportación
- 2015** **Final Degree Project** - University Castilla la Mancha – Ciudad Real, Spain
Student: Jose Ignacio Moreno Perez
Topic: Asesoramiento energético de un cultivo de biocombustible en Castilla La Mancha
- 2015** **Final Degree Project** - University Castilla la Mancha – Ciudad Real, Spain
Student: Jesus Montoya Sanchez de Pablo
Topic: Assessment of GHG emissions from an Hydrogen based energetic model for traffic in Spain
- 2014** **Final Degree Projects (x2)** - University Castilla la Mancha – Ciudad Real, Spain
Students: Nerea Lopez Torres & Ismael Fernandez Baillo Callejas
Topic: Estudio de cavitación en bomba
- 2010 - 14** **PhD Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Erica Pérez Álvaro
Topic: Inestabilidades electromagnéticas en un sistema haz-plasma relativista y magnetizado
- 2014** **Final Degree Projects (x2)** - University Castilla la Mancha – Ciudad Real, Spain
Students: Maria Isabel Cebrian Ruiz & Arantxa Perez Serrano
Topic: Estudio de cavitación en bomba
- 2014** **Master Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Ramón Atochero Velasco
Topic: Producción de hidrógeno con pilas de combustible "SOEC"
- 2013 - 14** **Master Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Maria Lopez Miravalles
Topic: Asesoramiento de la electrificación del tráfico sobre las emisiones de GEI
- 2008 - 11** **Post-Doc (with L.O. Drury et M.E. Dieckmann)** - Dublin Institute for Advanced Studies
Student : G.C. Murphy
Topic: Relativistic Shocks in Gamma Ray Bursts
- 2009** **Master Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Rubén Jimeno Morón.
Topic: Estabilización del escenario de ignición rápida mediante un haz de protones
- 2008** **Master Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Leonel Antonio Luna Bello.
Topic: Evaluación del potencial de generación de energía renovable en comunidades rurales del municipio de Bluefields, Nicaragua.
- 2008** **Master Thesis** - University Castilla la Mancha – Ciudad Real, Spain
Student: Francisco Javier Marín Fernández
Topic: Inestabilidad de filamentación en un plasma degenerado
- 2006** **Training Period** - University Castilla la Mancha – Ciudad Real, Spain
Student: Jean-Marie Anfray, Ecole Nationale Supérieure des Techniques Avancées, Paris, France
Topic: Propagation d'un faisceau d'électrons relativistes dans un plasma collisionnel

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Service & Administration

- Boards** *Journal of Plasma Physics (Cambridge Press) – Associate Editor*
EPS Plasma Physics Conference 2017 – Sub-Chair of the Program Committee
- Referee** *Science, Phys. of Plasmas, Phys. Lett. A, J. of Phys. A, Computer Phys. Comm.*
Plasmas Phys. and Controlled Fusion, Laser and Particle Beams, EPL, NJP
Astrophys. Journal, J. of Mathematical Phys., IEEE Transactions on Plasma Science.
Israeli Science Foundation, FONDECYT (Chile), ANR (France)
- Listed in** *Who's Who in Science and Engineering, Who's Who in the World,*
International Directory of Experts and Expertise, The Cambridge Blue Book 2nd Edition.
- Member** *European Physical Society, Real Sociedad Española de Física, American Physical Society*
- Member of the Board of Directors (School of Industrial Engineering, Ciudad Real, Spain, 2008-2011)
Member of the Economic Board (School of Industrial Engineering, Ciudad Real, Spain, 2008-2011)

Books & Outreach

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| The Energy-Climate Continuum
Lessons from Basic Science and History
<i>Springer, 2014</i> | Environment, Energy and Climate Change II
Ch. 1: Energy and Climate: A Global Perspective
<i>Springer, 2015</i> |
| The World is not 6000 years old. So what?
<i>Wipf & Stock, 2014</i> | How Green are Electric or Hydrogen-Powered Cars?:
Assessing GHG Emissions of Traffic in Spain
<i>Springer, 2016</i> |

Various conferences on Climate Science and related issues – See list of Publications and Talks

Miscellaneous

- 2003** **Minister for a Protestant Church – Madrid, Spain**
- 2002** **NGO Project Director - HOPE Worldwide France, Paris, France**
Supervision of 3 social workers, Responsible for a Senior Center in Paris
Leading of volunteer teams up to hundreds of people
Fund Raising Organization, Support of a Rumanian Orphanage
- 1996-2002** **System Administrator - Eglise du Christ de Paris, Paris, France**
Lotus Notes PC/Mac Network (30 clients) with NT4 Server
Lotus Notes Databases Development, Webmaster
Conference organization (up to 2500+ participants)
- 1995-2002** **Publisher - Publications Chrétiennes Internationales, Paris, France**
Direction of 1 employee Leading of volunteer teams
Book translation from English to French
Managing of the publishing chain from manuscript editing to book selling
- 1993-1998** **Volunteer – Les petits frères de Pauvres, Paris, France**
- 6-7/1991** **Technical Survey in the United States - For the French Commissariat à l'Energie Atomique**
What about Ceramic Composite Materials in the US?