

## Dr. Antoine Bret - Curriculum

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### Universidad de Castilla-La Mancha (UCLM)

School of Industrial Engineering  
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### Associate Professor (Profesor Titular)

#### Education History

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- 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

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- 9/2004 -**      **Visiting Prof., then Tenured Associate Prof. (from 2009) - UCLM, Spain**  
*Courses taught:* Renewable Energies and Climate Change - 4 months course<sup>1</sup>  
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

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<sup>1</sup> 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

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#### 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 Supervision<sup>2</sup>

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**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

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<sup>2</sup> 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

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- 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 2<sup>nd</sup> 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  
*Springer, 2014*

**Environment, Energy and Climate Change II**  
Ch. 1: Energy and Climate: A Global Perspective  
*Springer, 2015*

**The World is not 6000 years old. So what?**  
*Wipf & Stock, 2014*

**How Green are Electric or Hydrogen-Powered Cars?:  
Assessing GHG Emissions of Traffic in Spain**  
*Springer, 2016*

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

### Miscellaneous

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- 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?