

## Dr. Antoine Bret - Curriculum

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

School of Industrial Engineering  
Avenida Camillo Jose Cela, s/n  
13 071 Ciudad Real, SPAIN  
Tel. (34) 926 295 300 - Ext. 3837  
[antoineclaude.bret@uclm.es](mailto:antoineclaude.bret@uclm.es)  
[www.antoinebret.com](http://www.antoinebret.com)

### 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, *Supélec*, France, 1991.

Research in plasma physics theory. Stopping power, Fusion (inertial confinement), 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 11 grants. Co-PI of 2.

Advisor for 1 PhD Thesis and 16 Master Thesis (or equivalent).

Teaching on Energy and Climate issues since 2004.

Advanced Seminar on the topic at “Instituto de Empresa” in fall 2016.

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

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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<sup>1</sup>  
Fluid Mechanics  
Theory of Pumps and Turbines
- 6/2018**      **Visiting Scholar** - *Harvard-Smithsonian Center for Astrophysics - USA*  
**6-7/2016**      “Salvador de Madariaga” Fellow (2012)  
**6-7/2014**      Research and Plasma Physics Seminars (see arXiv:1205.6259)  
**1-8/2012**
- 10-11/2016**      **Adjunct Professor, IE University** – *Madrid, Spain*  
Advanced Seminar on “Tips you must know about Climate Change and Energy”
- 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*

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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 biocarburante 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 filamentacion 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), Sweden*
- 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?