

Antoine BRET - Publications and Talks

1. Refereed Papers

- 1.1 BRET A., Dieckmann M.E.
Electrostatic and magnetic instabilities in the transition layer of a collisionless weakly relativistic pair shock.
In Press, Monthly Notices of the Royal Astronomical Society.
- 1.2 BRET A., Peer A, Sironi L., Dieckmann M.E., Narayan R.
Departure from MHD prescriptions in shock formation over a guiding magnetic field.
In Press, Laser and Particles Beams.
- 1.3 BRET A., Dieckmann M.E.
Hierarchy of instabilities for two counter-streaming magnetized pair beams: influence of field obliquity.
Physics of Plasmas, 24, 62105, (2017).
- 1.4 BRET A., Peer A, Sironi L., Sadowski O, Narayan R.
Kinetic inhibition of shock formation in the presence of a parallel magnetic field.
Journal of Plasma Physics, 83, 715830201, (2017).
- 1.5 Dieckmann M.E., BRET A.
PIC simulation study of the formation of a nonrelativistic pair shock.
Journal of Plasma Physics, 83, 905830104, (2017).
- 1.6 Dieckmann M.E., Ahmed H, Soria DD, Sarri G, Walder R, Folini D, BRET A., Ynnerman A, Borghesi M
Experimental Observation of Thin-shell Instability in a Collisionless Plasma.
Astrophysical Journal Letters, 834, 21, (2017).
- 1.7 Stockem A., BRET A., Sinha U.
Shock formation in magnetised electron-positron plasmas: mechanism and timing.
New Journal of Physics, 18, 105002, (2016).
- 1.8 BRET A.
Particles trajectories in Weibel magnetic filaments with a flow-aligned magnetic field.
Journal of Plasma Physics, 82, 905820403, (2016).
- 1.9 BRET A.
Hierarchy of instabilities for two counter-streaming magnetized pair beams.
Physics of Plasmas, 23, 62122, (2016).
- 1.10 BRET A., Stockem A., Narayan R., Ruyer C., Dieckmann M.E., Silva L.O.
Theory of the formation of a collisionless Weibel shock: pair vs. electron/proton plasmas.
Laser and Particles Beams, 34, 362, (2016).
- 1.11 Marcowith A, BRET A., Bykov A., Dieckmann M.E., Drury L, Lembège B, Lemoine M., Morlino G, N
The microphysics of collisionless shock waves (REVIEW ARTICLE).
Reports on Progress in Physics, 79, 46901, (2016).
- 1.12 Stockem A., BRET A., Fonseca R.A, Silva L.O.
Physics of collisionless shocks - theory and simulation.
Plasma Physics and Controlled Fusion, 58, 14005, (2016).

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- 1.13** Dieckmann M.E., Ahmed H, Soria DD, Sarri G, Walder R, Folini D, BRET A., Ynnerman A, Borghesi M
A thin-shell instability in collisionless plasma.
Physical Review E, 92, 31101, (2015).
- 1.14** BRET A.
Particles trajectories in magnetic filaments.
Physics of Plasmas, 22, 72116, (2015).
- 1.15** Stockem A., BRET A., Fonseca R.A, Silva L.O.
Shock formation in electron-ion plasmas: mechanism and timing.
Astrophysical Journal Letters, 803, 29, (2015).
- 1.16** BRET A.
Collisional behaviors of astrophysical collisionless plasmas (REVIEW ARTICLE).
Journal of Plasma Physics, 81, 455810202, (2015).
- 1.17** Mendonca JT, Haas F., BRET A.
Influence of flavor oscillations on neutrino beam instabilities.
Physics of Plasmas, 21, 92117, (2014).
- 1.18** BRET A., Stockem A., Narayan R., Silva L.O.
Collisionless relativistic shock formation: full formation mechanism and timing.
Physics of Plasmas, 21, 72301, (2014).
- 1.19** Stockem A., Fiuza F., BRET A., Fonseca R.A, Silva L.O.
Exploring the nature of collisionless shocks under laboratory conditions.
Nature Scientific Reports, 4, 3934, (2014).
- 1.20** BRET A.
Robustness of the filamentation instability in arbitrarily oriented magnetic field: Full 3D calculation.
Physics of Plasmas, 21, 22106, (2014).
- 1.21** BRET A., Piriz A. R. , Tahir N.A.
Imprint reduction in rotating heavy ions beam energy deposition.
Proceeding of 19th International Symposium on Heavy Ion Inertial Fusion, 8/2012.
Nuclear Instruments and Methods In Physics Research A, 733, 200, (01/01/2014).
- 1.22** BRET A.
Robustness of the filamentation instability for asymmetric plasma shells collision in arbitrarily oriented magnetic field.
Physics of Plasmas, 20, 104503, (2013).
- 1.23** BRET A., Stockem A., Fiuza F., Perez Alvaro E, Ruyer C., Narayan R., Silva L.O.
The formation of a collisionless shock.
Laser and Particles Beams, 31, 487, (2013).
- 1.24** BRET A., Stockem A., Fiuza F., Ruyer C., Gremillet L., Narayan R., Silva L.O.
Relativistic collisionless shock formation in pair plasmas.
Journal of Plasma Physics, 79, 367, (2013).
- 1.25** BRET A., Fiuza F., Gremillet L., Narayan R., Perez Alvaro E, Ruyer C., Silva L.O., Stockem A.
Theoretical aspects of the Fireball model .
Proceeding of Fall 2012 gamma-ray burst symposium, 10/2012.
European Astronomical Society Publications Series, 61, 295, (01/06/2013).

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- 1.26** Perez Alvaro E, BRET A.
Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Proceeding of Fall 2012 gamma-ray burst symposium, 10/2012.
European Astronomical Society Publications Series, 61, 135, (01/06/2013).
- 1.27** BRET A., Stockem A., Fiuza F., Ruyer C., Gremillet L., Narayan R., Silva L.O.
Collisionless shock formation, spontaneous electromagnetic fluctuations, and streaming instabilities .
Physics of Plasmas, 20, 42102, (2013).
- 1.28** Niemiec J., Pohl M., BRET A., Wieland V.
Nonrelativistic Parallel Shocks in Unmagnetized and Weakly Magnetized Plasmas.
Astrophysical Journal, 759, 73, (2012).
- 1.29** Dieckmann M.E., BRET A., Sarri G, Perez Alvaro E, Kourakis I, Borghesi M
Particle simulation study of electron heating by counterstreaming ion beams ahead of supernova remnant shocks.
Plasma Physics and Controlled Fusion, 54, 85015, (2012).
- 1.30** BRET A., Piriz A. R. , Tahir N.A.
Harmonic analysis of irradiation asymmetry for cylindrical implosions driven by high-frequency rotating ion beams.
Physical Review E, 85, 36402, (2012).
- 1.31** BRET A., Haas F.
Quantum effects in beam-plasma instabilities.
Proceeding of ITCPS: Strongly Coupled Ultra-cold and Quantum Plasmas , 9/2011.
AIP Conference Proceedings, 1421, 156, (15/02/2012).
- 1.32** Dieckmann M.E., Sarri G, Murphy G, BRET A., Romagnani L., Kourakis I, Borghesi M, Ynnerman A, Drury L
PIC simulation of a thermal anisotropy-driven Weibel instability in a circular rarefaction wave.
New Journal of Physics, 14, 23007, (2012).
- 1.33** Stroman T., Pohl M., Niemiec J., BRET A.
Could Cosmic Rays Affect Instabilities In The Transition Layer Of Nonrelativistic Collisionless Shocks?.
Astrophysical Journal, 746, 24, (2012).
- 1.34** Haas F., BRET A.
Nonlinear low-frequency collisional quantum Buneman instability.
Europhysics Letters, 97, 26001, (2012).
- 1.35** BRET A.
Rigorous merging of Two-Stream and Buneman instabilities.
Physica Scripta, 84, 65507, (2011).
- 1.36** Nakar E., BRET A., Milosavljevic M
Two-stream-like Instability in Dilute Hot Relativistic Beams and Astrophysical Relativistic Shocks.
Astrophysical Journal, 738, 93, (2011).
- 1.37** Sarri G, Murphy G, Dieckmann M.E., BRET A., Quinn K, Kourakis I, Borghesi M, Drury L, Ynnerman A
Two-dimensional particle-in-cell simulation of a plasma expansion into a rarefied medium.
New Journal of Physics, 13, 73023, (2011).

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- 1.38** BRET A., Perez Alvaro E
Robustness of the Weibel instability as shock mediator in arbitrarily oriented magnetic field.
Physics of Plasmas, 18, 80706, (2011).
- 1.39** BRET A., Haas F.
Quantum kinetic theory of the filamentation instability.
Physics of Plasmas, 18, 72108, (2011).
- 1.40** BRET A.
Intuitive calculation of the relativistic Rayleigh-Taylor instability linear growth rate.
Laser and Particles Beams, 29, 255, (2011).
- 1.41** BRET A., Gremillet L., Dieckmann M.E.
Multidimensional Electron Beam-Plasma Instabilities in the Relativistic Regime (REVIEW ARTICLE).
Physics of Plasmas, 17, 120501, (2010).
- 1.42** Murphy G, Dieckmann M.E., BRET A., Drury L
Magnetic field amplification and electron acceleration to near-energy equipartition with ions by a mildly relativistic quasi-parallel plasma protoshock.
Astronomy & Astrophysics, 524, 84, (2010).
- 1.43** BRET A., Dieckmann M.E., Gremillet L.
Recent progresses in relativistic beam-plasma instability theory.
Annales Geophysicae, 28, 2127, (2010).
- 1.44** BRET A.
Collisional and collisionless beam plasma instabilities.
Laser and Particles Beams, 28, 491, (2010).
- 1.45** BRET A., Haas F.
Connection between the two branches of the quantum two-stream instability across the k space.
Physics of Plasmas, 17, 52101, (2010).
- 1.46** BRET A., Dieckmann M.E.
How large can be the electron to proton mass ratio in Particle-In-Cell simulations of unstable systems?.
Physics of Plasmas, 17, 32109, (2010).
- 1.47** BRET A., Gremillet L., Bénisti D.
Exact relativistic kinetic theory of the full unstable spectrum of an electron beam-plasma system wi
Physical Review E, 81, 36402, (2010).
- 1.48** Niemiec J., Pohl M., BRET A., Stroman T.
Aperiodic Magnetic Turbulence Produced By Relativistic Ion Beams.
Astrophysical Journal, 709, 1148, (2010).
- 1.49** Dieckmann M.E., BRET A.
Electric field generation by the electron beam filamentation instability: Filament size effects.
Physica Scripta, 81, 15502, (2010).
- 1.50** Haas F., BRET A., Shukla P.K.
Physical interpretation of the quantum two-stream instability.
Physical Review E, 80, 66407, (2009).

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- 1.51** Deutsch C., Zwicknagel G, BRET A.
Ultra-cold Plasmas: A Paradigm for Strongly Coupled and Classical Electron Fluid.
Journal of Plasma Physics, 75, 799, (2009).
- 1.52** BRET A.
Stable transport in proton driven Fast Ignition.
Physics of Plasmas, 16, 94505, (2009).
- 1.53** BRET A.
Weibel, Two-Stream, Filamentation, Oblique, Bell, Buneman... which one grows faster ? .
Astrophysical Journal, 699, 990, (2009).
- 1.54** BRET A., Marin Fernandez FJ., Anfray JM.
Unstable spectrum of a relativistic electron beam interacting with a quantum collisional plasma:
application to the Fast Ignition Scenario.
Plasma Physics and Controlled Fusion, 51, 75010, (2009).
- 1.55** Dieckmann M.E., BRET A.
PIC simulation of an electron double layer in a nonrelativistic plasma flow: Electron acceleration to
ultrarelativistic speeds.
Astrophysical Journal, 694, 154, (2009).
- 1.56** BRET A.
Fast growing instabilities for non-parallel flows.
Physics Letters A, 373, 871, (2009).
- 1.57** Deutsch C., BRET A., Firpo M.-C., Gremillet L., Lefevbre E, Lifshitz A.
Onset of Coherent Electromagnetic Structures in the REB-DT Fuel Interaction of Fast Ignition
Concern.
Proceeding of 12th Latin American Workshop on Plasma Physics, 9/2007.
Physica Scripta, 131, 14036, (05/12/2008).
- 1.58** BRET A., Deutsch C.
Correlated stopping power of a chain of N charges.
Journal of Plasma Physics, 74, 595, (2008).
- 1.59** Deutsch C., BRET A., Firpo M.-C., Gremillet L., Lefevbre E, Lifshitz A.
Onset of Coherent Electromagnetic Structures in the REB-DT Fuel Interaction of Fast Ignition
Concern.
Laser and Particles Beams, 26, 157, (2008).
- 1.60** BRET A., Dieckmann M.E.
Relativistic electron beam driven instabilities in the presence of an arbitrarily oriented magnetic
field.
Physics of Plasmas, 15, 62102, (2008).
- 1.61** BRET A., Gremillet L., Bénisti D., Lefevbre E
Exact relativistic kinetic theory of an electron beam-plasma system: hierarchy of the competing mo
Physical Review Letters, 100, 205008, (2008).
- 1.62** BRET A.
Filamentation instability in a quantum magnetized plasma.
Physics of Plasmas, 15, 22109, (2008).

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- 1.63** Dieckmann M.E., BRET A., Shukla P.K.
Electron surfing acceleration by mildly relativistic beams: wave magnetic field effects .
New Journal of Physics, 10, 13029, (2008).
- 1.64** BRET A., Dieckmann M.E.
Ions motion effects on the full unstable spectrum in relativistic electron beam plasma interaction.
Physics of Plasmas, 15, 12104, (2008).
- 1.65** Dieckmann M.E., BRET A., Shukla P.K.
Comparing electrostatic instabilities driven by mildly and highly relativistic proton beams.
Plasma Physics and Controlled Fusion, 49, 1989, (2007).
- 1.66** BRET A.
Filamentation instability in a quantum plasma.
Physics of Plasmas, 14, 84503, (2007).
- 1.67** BRET A., Gremillet L., Deutsch C.
Oblique instabilities in relativistic electron beam plasma interaction.
Proceeding of 16th International Symposium on Heavy Ion Inertial Fusion, 7/2006.
Nuclear Instruments and Methods In Physics Research A, 577, 317, (05/06/2007).
- 1.68** Gremillet L., Benisti D., Lefevbre E, BRET A.
Linear and nonlinear development of oblique beam-plasma instabilities in the relativistic kinetic regime.
Physics of Plasmas, 14, 40704, (2007).
- 1.69** BRET A., Gremillet L., Bellido JC.
How really transverse filamentation instability is ?
Physics of Plasmas, 14, 32103, (2007).
- 1.70** BRET A., Deutsch C.
About the most unstable modes encountered in beam plasma interaction physics.
Laser and Particles Beams, 25, 117, (2007).
- 1.71** BRET A.
Quasi exact model for the anisotropy driven Weibel instability all over Fourier space.
Contributions to Plasma Physics, 47, 133, (2007).
- 1.72** BRET A.
Beam plasma dielectric tensor with Mathematica.
Computer Physics Communications, 176, 362, (2007).
- 1.73** BRET A., Gremillet L.
Oblique Instabilities in Relativistic Electron Beam Plasma Interaction (Invited Paper).
Proceeding of 33nd EPS Plasma Physics Conference, 6/2006.
Plasma Physics and Controlled Fusion, 48, 405, (15/11/2006).
- 1.74** BRET A.
A simple analytical model for the Weibel instability.
Physics Letters A, 359, 52, (2006).
- 1.75** BRET A., Dieckmann M.E., Deutsch C.
Oblique electromagnetic instabilities for a hot relativistic beam interacting with a hot and magnetized plasma.
Physics of Plasmas, 13, 82109, (2006).

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- 1.76** BRET A., Deutsch C.
Density gradient effects on beam plasma linear instabilities for fast ignition scenario.
Laser and Particles Beams, 24, 269, (2006).
- 1.77** BRET A., Firpo M.-C., Deutsch C.
Characterization of the initial filamentation of a relativistic electron beam passing through a plasma.
Proceeding of Fourth International Conference on Inertial Fusion Sciences and Applications, 9/2005.
- 1.78** BRET A.
Oblique electromagnetic instabilities for an ultra relativistic electron beam passing through a plasma.
Europhysics Letters, 74, 1027, (2006).
- 1.79** BRET A., Deutsch C.
A fluid approach to linear beam plasma electromagnetic instabilities.
Physics of Plasmas, 13, 42106, (2006).
- 1.80** BRET A., Deutsch C., Firpo M.-C.
Between Two Stream and Filamentation Instabilities: Temperature and collisions effects.
Laser and Particles Beams, 24, 27, (2006).
- 1.81** Dieckmann M.E., Frederiksen J.T., BRET A., Shukla P.K.
Evolution of the fastest-growing relativistic two-stream mixed-mode instability in plasmas.
Physics of Plasmas, 13, 112110, (2006).
- 1.82** BRET A., Deutsch C.
Stabilization of the filamentation instability and the anisotropy of the background plasma.
Physics of Plasmas, 13, 22110, (2006).
- 1.83** BRET A., Deutsch C.
Beam plasma electromagnetic instabilities in a smooth density gradient: Application to the Fast Ignition Scenario.
Physics of Plasmas, 12, 102702, (2005).
- 1.84** BRET A., Deutsch C.
Hierarchy of beam plasma instabilities up to high beam densities for Fast Ignition Scenario.
Physics of Plasmas, 12, 82704, (2005).
- 1.85** Deutsch C., BRET A., Fromy P.
Mitigation of Electromagnetic instabilities for Fast Ignition Scenario.
Contributions to Plasma Physics, 45, 254, (2005).
- 1.86** Deutsch C., BRET A., Fromy P.
Mitigation of electromagnetic instabilities in fast ignition scenarii.
Laser and Particles Beams, 23, 5, (2005).
- 1.87** BRET A., Deutsch C.
Mixed two-stream filamentation modes in a collisional plasma.
Physics of Plasmas, 12, 82109, (2005).
- 1.88** Deutsch C., BRET A., Firpo M.-C., Fromy P.
Interplay of collisions with quasi-linear growth rates of relativistic e-beam driven instabilities in a superdense plasma.
Physical Review E, 72, 26402, (2005).

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- 1.89** BRET A., Firpo M.-C., Deutsch C.
Electromagnetic instabilities for relativistic beam-plasma interaction for whole k space: non relativistic beam and plasma temperature effects.
Physical Review E, 72, 16403, (2005).
- 1.90** BRET A., Firpo M.-C., Deutsch C.
Transverse beam temperature effects on mixed Two-Stream/Filamentation unstable modes.
Proceeding of 15th International Symposium on Heavy Ion Inertial Fusion, 6/2004.
Nuclear Instruments and Methods In Physics Research A, 544, 427, (01/03/2005).
- 1.91** BRET A., Firpo M.-C., Deutsch C.
Characterization of the initial filamentation of a relativistic electron beam passing through a plasma.
Physical Review Letters, 94, 115002, (2005).
- 1.92** BRET A., Firpo M.-C., Deutsch C.
Bridging the Gap between Two Stream and Filamentation Instabilities.
Laser and Particles Beams, 23, 375, (2005).
- 1.93** BRET A., Firpo M.-C., Deutsch C.
Collective electromagnetic modes for beam-plasma interaction for whole k space.
Physical Review E, 70, 46401, (2004).
- 1.94** BRET A., Deutsch C.
Dicluster stopping in a two-dimension electron fluid.
Proceeding of Symposium on Heavy Ion Inertial Fusion, 9/1997.
Nuclear Instruments and Methods In Physics Research A, 415, 703, (01/03/1998).
- 1.95** Deutsch C., BRET A., Martinez-Val J.M., Tahir N.A.
Inertial fusion driven by intense cluster ion beams.
Fusion Technology, 31, 1, (1997).
- 1.96** BRET A.
Stopping power and straggling of an extended charge in a free-electron gas.
Nuclear Instruments and Methods in Physics Research B, 88, 107, (1994).
- 1.97** BRET A., Deutsch C.
Ion stopping in two-dimensional electron layers.
Europhysics Letters, 25, 291, (1994).
- 1.98** BRET A., Deutsch C.
Dielectric response function and stopping power of a two-dimensional electron gas.
Physical Review E, 48, 2994, (1993).
- 1.99** BRET A., Deutsch C.
Straggling of an extended charge distribution in a partially degenerate plasma.
Physical Review E, 48, 2989, (1993).
- 1.100** BRET A., Deutsch C.
Stopping power of extended cluster and ion charge distributions in an arbitrarily degenerated electron fluid.
Physical Review E, 47, 1276, (1993).

2. Conferences - Invited Talks

Antoine BRET - Publications and Talks

- 2.1 Inhibition d'un choc MHD en présence d'un champ magnétique parallèle.
4th Workshop Micro-Astro-Chocs, Paris, France, 6/2017.
- 2.2 Inhibition of MHD-shock in the presence of a parallel magnetic field.
The 1st JPP Frontiers in Plasma Physics Conference, Abbazia di Spineto, Italy, 5/2017.
- 2.3 Inhibition of MHD-shock in the presence of a parallel magnetic field.
8th International Conference on the Frontiers of Plasma Physics and Technology, Viña del Mar, Chile
- 2.4 Formation d'un choc sans collisions et trajectoires de particules chargées dans des filaments magnétiques.
2nd Workshop Micro-Astro-Chocs, Paris, France, 5/2016.
- 2.5 The basics and not-so-basic physics of beam plasmas instabilities.
Feedback over 44 orders of magnitude: from Gamma-rays to the Universe, Toronto, Canada, 3/2016.
- 2.6 Collisional behaviors of astrophysical collisionless plasmas.
AGU Fall Meeting, San Francisco, USA, 12/2015.
- 2.7 The formation of a collisionless Weibel shock.
Atelier Chocs sans Collisions, Bordeaux, France, 5/2014.
- 2.8 The Formation of a Collisionless Shock.
6th International Conference on the Frontiers of Plasma Physics and Technology, Gaborone, Botswana, 3/2013.
- 2.9 Collisionless shock formation.
International Space Science Institute (ISSI) workshop "Fermi Shock Acceleration Process: From Non-Relativistic to Ultra-Relativistic Shocks", Bern, Switzerland, 12/2012.
- 2.10 Spontaneous electromagnetic fluctuations, beam-plasma instabilities and collisionless shock formation.
Atelier National Hautes Energies, Paris, France, 10/2012.
- 2.11 Collisionless shock formation.
International Topical Conference on Plasma Science: Advanced Plasma Concepts, Faro, Portugal, 9/2012.
- 2.12 Beam-plasma instabilities in Quantum Plasmas.
International Topical Conference on Plasma Science: Strongly Coupled Ultra-cold and Quantum Plasmas, Lisbon, Portugal, 9/2011.
- 2.13 Introduction to microinstabilities in collisionless shocks I-linear theory.
International Space Science Institute (ISSI) workshop "Fermi Shock Acceleration Process: From Non-Relativistic to Ultra-Relativistic Shocks", Bern, Switzerland, 2/2011.
- 2.14 Recent progresses in Relativistic beam-plasma instabilities.
Dynamical Processes in Space Plasmas (Isradyamics), Ein Bokek, Israel, 4/2010.
- 2.15 Plasma Instabilities in Relativistic Shocks.
Nonlinear Processes in Astrophysical Plasmas: Particle Acceleration, Magnetic Field Amplification, and Radiation Signatures, Kavli Institute for Theoretical Physics, Santa Barbara, USA, 9/2009.

Antoine BRET - Publications and Talks

- 2.16** Aperiodic Magnetic Turbulence Produced by Streaming CRs.
KITP Program: Particle Acceleration in Astrophysical Plasmas, Kavli Institute for Theoretical Physics, Santa Barbara, USA, 7/2009.
- 2.17** Streaming instabilities in the relativistic regime.
12th Marcel Grossmann Meeting on General Relativity and Gravitation, Paris, France, 7/2009.
- 2.18** A unified kinetic model of relativistic electron beam-plasma instabilities.
Rencontre CIRM 2008: Nouvelles voies pour la modélisation de l'interaction laser-matière, Marseil
- 2.19** Instabilities of a relativistic electron beam in a plasma.
Kinetic Modelling of Astrophysical Plasmas, Cracow, Poland, 10/2008.
- 2.20** Fast Ignitor Physics.
XII Latino-American Workshop on Plasma Physics , Caracas, Venezuela, 9/2007.
- 2.21** An exact linear kinetic model of the fully relativistic current filamentation instability with smooth distribution functions.
Fifth International Conference on Inertial Fusion Sciences and Applications, Kobe, Japan, 9/2007.
- 2.22** Onset of coherent electromagnetic structures in the REB-DT fuel interaction of fast ignition concern.
International Conference on the Frontiers of Plasma Physics and Technology, Bangkok, Thailand, 3/2007.
- 2.23** Fast Ignition-related kinetic simulations of hot electron transport.
33rd EPS Plasma Physics Conference, Rome, Italy, 6/2006.
- 2.24** Oblique Instabilities in Relativistic Electron Beam Plasma Interaction.
33rd EPS Plasma Physics Conference, Rome, Italy, 6/2006.
- 2.25** Beam plasma electromagnetic instabilities in a smooth density gradient.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2006.
- 2.26** Bridging the Gap between Two-Stream and Filamentation Instabilities.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 2/2004.
- 2.27** Stopping power and straggling of an extended charge in a free-electron gas.
Polyatomic Ion Impact on Solids and Related Phenomena, Saint-Malo, France, 6/1993.

3. Conferences - Talks

- 3.1** Inhibition of MHD-shock in the presence of a parallel magnetic field.
37th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirschegg, Austria, 1/2017.
- 3.2** Shock Formation in Electron-Ion Plasmas: Mechanism and Timing.
APS Plasma Physics Meeting, San Jose, USA, 10/2016.
- 3.3** Theory of the formation of a collisionless shock.
36th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirschegg, Austria, 1/2016.

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- 3.4** Comparing collisionless shocks formation in pair and electron/ion plasmas.
42nd EPS Conference on Plasma Physics, Lisbon, Portugal, 6/2015.
- 3.5** Collisionless Weibel shocks: Full formation mechanism and timing.
56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, 10/2014.
- 3.6** The formation of a collisionless shock in relativistic pair plasma.
34th International Workshop on Physics of High Energy Density in Matter, Hirschegg, Austria, 1/2014.
- 3.7** Energy and climate: A global perspective.
Congress Energy and Environment Knowledge Week, Toledo, Spain, 11/2013.
- 3.8** Collisionless shock formation, spontaneous electromagnetic fluctuations, and streaming instabilities.
55th Annual Meeting of the APS Division of Plasma Physics, Denver, USA, 11/2013.
- 3.9** Aspectos teóricos del escenario "Fireball" para Brotes de Rayos Gamma.
XXXIV Biental de Física de la RSEF, Valencia, Spain, 7/2013.
- 3.10** The formation of a collisionless shock.
33rd International Workshop on Physics of High Energy Density in Matter, Hirschegg, Austria, 1/2013.
- 3.11** Theoretical aspects of the Fireball model .
Fall 2012 gamma-ray burst symposium, Marbella, Spain, 10/2012.
- 3.12** Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2012.
- 3.13** Inestabilidad de filamentación con campo magnético arbitrariamente orientado.
XXXIII Reunión Biental de la RSEF, Santander, Spain, 9/2011.
- 3.14** Kinetic studies of nonrelativistic parallel shocks.
32st International Cosmic Ray Conference, Beijing, China, 8/2011.
- 3.15** On the proton to electron mass ratio in particle-in-cell simulations.
38th EPS Plasma Physics Conference, Strasbourg, France, 6/2011.
- 3.16** How large can be the electron to proton mass ratio in particle-in-cell simulations of unstable systems? .
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2011.
- 3.17** Collisional and collisionless beam plasma instabilities.
52th APS Plasma Physics Meeting, Chicago, USA, 11/2010.
- 3.18** Collisional and collisionless beam plasma instabilities.
37th EPS Plasma Physics Conference, Dublin, Irland, 6/2010.
- 3.19** Recent results on relativistic electron beam-plasma instabilities.
Direct Drive and Fast Ignition Workshop, London, UK, 4/2010.

Antoine BRET - Publications and Talks

- 3.20** Inestabilidades Haz-Plasma en Régimen Relativista: Papel en Fusión Termonuclear y Astrofísica. XXXII Biental de Física de la RSEF, Ciudad Real, Spain, 9/2009.
- 3.21** Magnetic field generation by a relativistic cosmic-ray ion beam in the precursor of parallel shocks. 31st International Cosmic Ray Conference, Lodz, Poland, 7/2009.
- 3.22** Unstable spectrum of a relativistic electron beam interacting with a quantum collisional plasma: application to the Fast Ignition Scenario. Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 2/2009.
- 3.23** Exact Relativistic Kinetic Theory of an Electron Beam-Plasma System. 6th Direct Drive and Fast Ignition Workshop, Lisbon, Portugal, 5/2008.
- 3.24** Dominant Unstable Mode in Fast Electron Beam Plasma Interaction. Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2008.
- 3.25** Onset of Coherent Electromagnetic Structures In the REB-DT Fuel Interaction for Fast Ignition. APS Plasma Physics Meeting, Orlando, USA, 11/2007.
- 3.26** Dominant unstable mode in fast electron beam plasma interaction. APS Plasma Physics Meeting, Orlando, USA, 11/2007.
- 3.27** Recent progresses in relativistic beam/plasma electromagnetic instabilities. Fifth international meeting Theory and numerical simulations of the direct drive inertial fusion, Madrid, Spain, 4/2007.
- 3.28** Surprises in relativistic beam plasma instabilities. Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2007.
- 3.29** Unstable oblique electromagnetic modes in the Fast Ignition Scenario. 16th International Symposium on Heavy Ion Inertial Fusion, St Malo, France, 7/2006.
- 3.30** Fluid approach to relativistic beam/plasma electromagnetic instabilities. Fourth international meeting Theory and numerical simulations of the direct drive inertial fusion, Bordeaux, France, 3/2006.
- 3.31** Characterization of the initial filamentation of a relativistic electron beam passing through a plasma. Fourth International Conference on Inertial Fusion Sciences and Applications, Biarritz, France, 9/2005.
- 3.32** Characterization of the initial filamentation of a relativistic electron beam passing through a plasma. 32nd EPS Plasma Physics Conference, Tarragona, Spain, 6/2005.
- 3.33** Taming of Electromagnetic Instabilities in Fast Ignition Scenarios For ICF and REB Stopping. Current Trends in International Fusion Research, Washington DC, USA, 3/2005.
- 3.34** Density gradient effects on beam plasma instabilities for Fast Ignition Scenario. Workshop on Simulations and theoretical developments on Direct-Drive Inertial Confinement Fusion, Toledo, Spain , 3/2005.
- 3.35** Between Two-Stream and Filamentation Instabilities: Temperature effects. Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2005.

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- 3.36 Bridging the Gap between Two-Stream and Filamentation Instabilities.
2004 International Symposium on Heavy Ion Inertial Fusion, Princeton, USA, 6/2004.
- 3.37 Coulombian Cluster Fragmentation.
Journée Statistiques l'ESPCI, Paris, France, 1/1995.

4. Conferences - Posters

- 4.1 Inhibition of mhd-shock in the presence of a parallel magnetic field.
44nd EPS Conference on Plasma Physics, Belfast, UK, 6/2017.
- 4.2 Collisionless shocks formation in pair plasmas.
42nd EPS Conference on Plasma Physics, Lisbon, Portugal, 6/2015.
- 4.3 Assessing the effect of traffic electrification on GHG emissions.
Congress Energy and Environment Knowledge Week, Toledo, Spain, 10/2014.
- 4.4 Robustness of the filamentation instability in arbitrarily oriented magnetic field.
56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, 10/2014.
- 4.5 Teoría de la formación de un choque no colisional.
XXXIV Biental de Física de la RSEF, Valencia, Spain, 7/2013.
- 4.6 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Fall 2012 gamma-ray burst symposium, Marbella, Spain, 10/2012.
- 4.7 Harmonic analysis of irradiation asymmetry for cylindrical implosions driven by high-frequency rotating ion beams.
19th International Symposium on Heavy Ion Inertial Fusion, Berkeley, USA, 8/2012.
- 4.8 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
NRAO-NAASC 2012 Workshop Outflows, Winds and Jets: From Young Stars to Supermassive Black Holes, Charlotte, USA, 3/2012.
- 4.9 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Seventh Conference on Inertial Fusion Sciences and Applications, Bordeaux, France, 9/2011.
- 4.10 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
38th EPS Plasma Physics Conference, Strasbourg, France, 6/2011.
- 4.11 How large can the electron to proton mass ratio be in particle-in-cell simulations of unstable systems?
52 APS Plasma Physics Meeting, Chicago, USA, 11/2010.
- 4.12 Exact relativistic kinetic theory of the full unstable spectrum of an electron-beam-plasma system with Maxwell-Juttner distribution functions.
52 APS Plasma Physics Meeting, Chicago, USA, 11/2010.
- 4.13 Kinetic studies of wave-particle interactions in cosmic-ray acceleration.
38th Assembly of Committee on Space Research (COSPAR), Bremen, Germany, 7/2010.
- 4.14 Magnetic Turbulence Generated by Streaming Cosmic Rays in the Precursor of Parallel Shocks.
11th High Energy Astrophysics Division Meeting, Hawaii, USA, 3/2010.

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- 4.15 Negative energy modes and the quantum two-stream instability.
51 APS Plasma Physics Meeting, Atlanta, USA, 11/2009.
- 4.16 Exact relativistic kinetic theory of an electron beam-plasma system hierarchy of the competing modes in the system parameter space.
35th EPS Conference on Plasma Physics, Hersonissos, Greece, 6/2008.
- 4.17 Beam plasma electromagnetic instabilities in a smooth density gradient: Applications to ICF fast ignition.
APS Plasma Physics Meeting, Orlando, USA, 11/2007.
- 4.18 Magnetic field effects on instabilities driven by a field-aligned relativistic electron beam and bulk electrons.
34th EPS Conference on Plasma Physics, Warsaw, Poland, 7/2007.
- 4.19 PIC simulations of relativistic electron flows: The fastest-growing mixed mode and the electromagnetic finite grid instability.
34th EPS Conference on Plasma Physics, Warsaw, Poland, 7/2007.
- 4.20 Oblique Electromagnetic Modes for a Hot REB in a Hot and Magnetized Plasma.
APS Plasma Physics Meeting, Philadelphia, USA, 10/2006.
- 4.21 Hierarchy of beam plasma instabilities up to high beam densities for Fast Ignition Scenario.
APS Plasma Physics Meeting, Denver, USA, 10/2005.
- 4.22 Interplay of collisions with quasi-linear growth rates of relativistic e-beam driven instabilities in a superdense plasma.
APS Plasma Physics Meeting, Denver, USA, 10/2005.
- 4.23 Collective Electromagnetic Modes for beam-plasma interaction in whole k space.
APS Plasma Physics Meeting, Savannah, USA, 11/2004.
- 4.24 Correlated Stopping Power in 2D.
APS Plasma Physics Meeting, New Orleans, USA, 11/1998.
- 4.25 Slowing down of ions in 2D plasma.
Meeting plasma APS, Minneapolis, USA, 11/1997.
- 4.26 Dicluster stopping in a 2D electron fluid.
Heavy Ion Fusion 97, Heidelberg, Germany, 9/1997.

5. Conference Proceedings

- 5.1 BRET A.
Streaming instabilities in the relativistic regime.
Proceeding of 12th Marcel Grossmann Meeting on General Relativity and Gravitation, 7/2009.
World Scientific, Singapore, , 862, (30/11/2011).
- 5.2 Niemiec J., Pohl M., Stroman T., BRET A.
Kinetic studies of nonrelativistic parallel shocks.
Proceeding of 32st International Cosmic Ray Conference, 8/2011.
, , , (18/08/2011).

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- 5.3** BRET A.
Collisional and collisionless beam plasma instabilities.
Proceeding of 37th EPS Conference on Plasma Physics, 6/2010.
European Conference Abstracts, , , (22/06/2010).
- 5.4** BRET A.
Inestabilidades Haz-Plasma en Régimen Relativista: Papel en Fusión Termonuclear y Astrofísica.
Proceeding of XXXII Bienal de Física y 18º Encuentro Ibérico, 9/2009.
Bienal de la Real Sociedad Española de Física - Comunicaciones Científicas, , 495, (20/10/2009).
- 5.5** Niemiec J., Pohl M., BRET A., Stroman T.
Magnetic field generation by a relativistic cosmic-ray ion beam in the precursor of parallel shocks.
Proceeding of 31st International Cosmic Ray Conference, 7/2009.
, , 6, (07/07/2009).
- 5.6** BRET A., Dieckmann M.E., Deutsch C.
Magnetic field effects on instabilities driven by a field-aligned relativistic electron beam and bulk electrons.
Proceeding of 34th EPS Conference on Plasma Physics, 7/2007.
European Conference Abstracts, 31, 2079, (02/07/2007).
- 5.7** Dieckmann M.E., Frederiksen J.T., Bret A., Shukla P.K.
PIC simulations of relativistic electron flows: The fastest-growing mixed mode and the electromagnetic finite grid instability.
Proceeding of 34th EPS Conference on Plasma Physics, 7/2007.
European Conference Abstracts, 31, 2078, (02/07/2007).
- 5.8** BRET A., Firpo M.-C., Deutsch C.
Characterization of the initial filamentation of a relativistic electron beam passing through a plasma.
Proceeding of 32nd EPS Plasma Physics Conference, 6/2005.
European Conference Abstracts, 29, 4035, (27/06/2005).
- 5.9** Deutsch C., BRET A., Eliezer S., Martinez-Val J.M., Tahir N.A.
Inertial fusion driven by intense cluster ion beams.
Proceeding of 1st International Symposium on Evaluation of Current Trends in Fusion Research, 11/1994.
Current Trends in International Fusion Research, 497, 539, (01/03/1997).
- 5.10** BRET A., Deutsch C.
Cluster Coulomb explosion in a hot plasma interface.
Proceeding of 7th International Symposium on Heavy Ion Inertial Fusion, 9/1995.
Fusion Engineering and Design, 32, 517, (01/03/1996).

6. Invited Seminars

- 6.1** Inhibition of MHD-shock in the presence of a parallel magnetic field.
Institute of Space Science, Barcelona, Spain, 20/01/2017
- 6.2** New wine into old wineskins: collisionless shocks in plasmas.
UCLA, USA, 19/07/2016
- 6.3** New wine into old wineskins: collisionless shocks in plasmas.
MIT, USA, 13/07/2016
- 6.4** New wine into old wineskins: collisionless shocks in plasmas.
Stanford Linear Accelerator, USA, 16/12/2015

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- 6.5 New wine into old wineskins: collisionless shocks in plasmas.
Ecole Normale Supérieure, Lyon, France, 11/12/2015
- 6.6 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Collisionless Shocks in Plasmas.
Strathclyde University, Glasgow, UK, 09/03/2015
- 6.7 The formation of a collisionless shock.
ITC Summer Seminars, Harvard-Smithsonian Center for Astrophysics, 26/06/2014
- 6.8 The formation of a collisionless shock.
The University of Texas at Austin, 18/06/2014
- 6.9 Streaming instabilities in the relativistic regime.
University College Cork, Ireland, 10/03/2014
- 6.10 Mechanism of formation of collisionless shocks and role in astrophysics.
University College Cork, Ireland, 10/03/2014
- 6.11 Mechanism of formation of collisionless shocks.
Institut de Ciències de l'Espai, Barcelona, Spain, 08/01/2014
- 6.12 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Collisionless Shocks in Plasmas.
Universidad Carlos III, Madrid, Spain, 11/12/2013
- 6.13 Gamma Ray Bursts, High Energy Cosmic Rays and Collisionless Shocks Generation.
Ecole Normale Supérieure, Lyon, France, 31/05/2013
- 6.14 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Massachusetts Institute of Technology, Cambridge, USA, 19/07/2012
- 6.15 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Laboratory for Laser Energetics, Rochester, USA, 06/06/2012
- 6.16 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
The University of Wisconsin, Madison, USA, 26/04/2012
- 6.17 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
The University of Kansas, USA, 05/04/2012
- 6.18 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Princeton University, USA, 02/03/2012
- 6.19 Gamma-ray-bursts, high-energy-cosmic-rays and beam-plasma instabilities.
Instituto de Astrofísica de Andalucía, Granada, Spain, 06/10/2011
- 6.20 Gamma-ray-bursts, high-energy-cosmic-rays and beam-plasma instabilities.
Institut de Ciències de l'Espai, Barcelona, Spain, 18/05/2011
- 6.21 Streaming Instabilities in the Relativistic Regime: Role in Inertial Fusion and Astrophysics.
Bochum University, Germany, 02/02/2010
- 6.22 Streaming instabilities in the relativistic regime.
Dublin Institute for Advanced Studies, Ireland, 21/07/2009

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- 6.23 Beam Plasma Instabilities in the Relativistic Regime.
Universidad Rey Juan Carlos, Madrid, Spain, 20/05/2009
- 6.24 Electromagnetic instabilities in relativistic beam-plasma interactions.
Inst Super Tecnico, Grupo de Laser e Plasma, Lisbon, Portugal, 02/06/2008
- 6.25 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
Université Paris VI, France, 09/03/2007
- 6.26 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
LULI, France, 05/12/2006
- 6.27 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
LPMIA, Nancy, 04/12/2006
- 6.28 About the not so well-known most unstable modes encountered in relativistic beam-plasma interaction.
GSI Darmstad, Germany, 25/10/2005
- 6.29 Au-delà de l'instabilité double faisceau: Instabilités électromagnétiques dans tout l'espace k pour u
LPGP, Orsay, France, 23/09/2005
- 6.30 Electromagnetic instabilities in all k space for beam-plasma interaction.
CELIA, Bordeaux, France, 18/05/2004

7. Outreach

- 7.1 Cambio climático: Como sabemos que lo hay, y ¿porqué?.
Collegio Juan de Valdes, Madrid, Spain, 05/06/2017
- 7.2 El cambio climático en cinco preguntas.
ARC-PEACE, Palma de Mallorca, Spain, 11/05/2017
- 7.3 El cambio climático en cinco preguntas.
IES La Ribera, Palma de Mallorca, Spain, 11/05/2017
- 7.4 El cambio climático en cinco preguntas.
Collegi Francesc de Borja Moll S'Arenal, Palma de Mallorca, Spain, 11/05/2017
- 7.5 Cambio climático: Como sabemos que lo hay, y ¿porqué?.
Collegio El Porvenir, Madrid, Spain, 16/03/2017
- 7.6 Peut-on croire à la science du climat ?.
Une réponse chrétienne au changement climatique (A'Rocha - COP21), Paris, France, 01/12/2015
- 7.7 Peut-on "croire" à la science climatique ?.
A'Rocha France, Domaine des Courmettes, France, 01/06/2015
- 7.8 Energy and Climate: a Global Perspective.
Conservatoire National des Arts des Métiers, LIRSA, Paris, France, 01/05/2015
- 7.9 Energy and Climate: a Global Perspective.
Strathclyde University, Glasgow, UK, 01/03/2015

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- 7.10** Climat : un réchauffement inexorable ?.
"Sciences Humaines" magazine, France, 01/11/2013

- 7.11** Energía y clima: una perspectiva global.
Camprodon Town Hall, Spain, 01/08/2013

- 7.12** Energía y clima: una perspectiva global.
Universidad Castilla-La Mancha - Summer School, (www.youtube.com/watch?v=fxJj75lm_Gc), 01/08/2013

- 7.13** Fusion, Energy, Climate: A Broad Perspective.
1st Technology in Inertial Fusion Workshop, Oporto, Portugal, 01/09/2010