Antoine BRET - Publications and Talks

1. Refereed Papers

1.1 BRET A.
Density jump as a function of magnetic field strength for perpendicular collisionless shocks with anisotrop
pressure.
Monthly Notices of the Royal Astronomical Society, 524, 4498, (2023).

1.2 Dieckmann M.E., Huete C., Cobos F., BRET A, Folini D, Eliasson B, Walder R
Stable surface waves of a subcritical fast magnetosonic shock in collisionless plasma.
Physica Scripta, 98, 95603, (2023).

1.3 BRET A.
Density jump as a function of magnetic field strength for parallel collisionless shocks with anisotropic ups
pressure.
Monthly Notices of the Royal Astronomical Society, 520, 6083, (2023).

1.4 BRET A., Narayan R.
Density jump as a function of magnetic field for oblique collisionless shocks in pair plasmas: allowed solu
Journal of Plasma Physics, 88, 905880615, (2022).

1.5 BRET A., Narayan R.
Density jump as a function of magnetic field for switch-on collisionless shocks in pair plasmas .
Journal of Plasma Physics, 88, 905880320, (2022).

1.6 BRET A, Narayan R.
Building a weak shockwave from linear modes.
Journal of Plasma Physics, 88, 905880108, (2022).

1.7 BRET A.
Quantum electrodynamic effects on counter-streaming instabilities in the whole k space.
Physical Review E, 105, 15205, (2022).

1.8 Haggerty C, BRET A., Caprioli D
Kinetic simulations of strongly-magnetized parallel shocks: deviations from MHD jump conditions.
Monthly Notices of the Royal Astronomical Society, 509, 2084, (2022).

1.9 BRET A.
Quantum electrodynamic effects on the two-stream instability.
Europhysics Letters, 135, 13535001, (2021).

1.10 BRET A.
Modified jump conditions for parallel collisionless shocks.
Physics of Plasmas, 28, 82107, (2021).

1.11 BRET A., Pe'er A
Bridging the gap between collisional and collisionless shock waves.
Journal of Plasma Physics, 87, 905870204, (2021).

1.12 BRET A.
Can we trust MHD jump conditions for collisionless shocks?.
Astrophysical Journal, 900, 111, (2020).

1.13 BRET A., Narayan R.
Density jump for parallel and perpendicular collisionless shocks.
Laser and Particles Beams, 38, 114, (2020).

1.14 BRET A., Dieckmann M.E.
Particle trajectories in Weibel filaments: influence of external field obliquity and chaos.
Journal of Plasma Physics, 86, 905860305, (2020).

1.15 Dieckmann M.E., Folini D, BRET A., Walder R
Simulation studies of the Weibel instability and the mirror instability in magnetized pair plasma.
Plasma Physics and Controlled Fusion, 8, 85027, (2019).

1.16 BRET A., Narayan R.
Density jump as a function of magnetic field for collisionless shocks in pair plasmas: the perpendicular ca
Physics of Plasmas, 26, 62108, (2019).

1.17 BRET A., Narayan R.
Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
Journal of Plasma Physics, 84, 905840604, (2018).

1.18 BRET A., Pe'er A
Three criteria for particle acceleration in collisionless shocks.
Laser and Particles Beams, 36, 458, (2018).

1.19 BRET A., Pe'er A
On the Formation and Properties of Fluid Shocks and Collisionless Shocks in Astrophysical Plasmas.
Journal of Plasma Physics, 84, 905840311, (2018).

1.20 Dieckmann M.E., Moreno Q., Doria D, Romagnani L., Sarri G, Folini D, Walder R, BRET A., Dhumières E
Expansion of a radially symmetric blast shell into a uniformly magnetized plasma.
Physics of Plasmas, 25, 52108, (2018).

1.21 Dieckmann M.E., BRET A.
Electrostatic and magnetic instabilities in the transition layer of a collisionless weakly relativistic pair shoc
Monthly Notices of the Royal Astronomical Society, 473, 198, (2018).

1.22 Dieckmann M.E., Folini D, Walder R, Sarri G, BRET A., Doria D, Ahmed H, Romagnani L., Borghesi M
Electrostatic shock waves in the laboratory and astrophysics: similarities and differences.
Plasma Physics and Controlled Fusion, 60, 14014, (2018).

1.23 Dieckmann M.E., Folini D, Walder R, Romagnani L., Dhumières E., BRET A., Karlsson T., Ynnerman A
Emergence of MHD structures in a collisionless PIC simulation plasma.
Physics of Plasmas, 24, 94502, (2017).

1.24 Dieckmann M.E., Doria D, Ahmed H, Romagnani L., Sarri G, Folini D, Walder R, BRET A., Borghesi M
Expansion of a radial plasma blast shell into an ambient plasma.
Physics of Plasmas, 24, 94501, (2017).

1.25 BRET A., Pe'er A, Sironi L., Dieckmann M.E., Narayan R.
Departure from MHD prescriptions in shock formation over a guiding magnetic field.
Laser and Particles Beams, 35, 513, (2017).

1.26 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).

1.27 BRET A., Pe'er 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).

1.28 Dieckmann M.E., BRET A.
Simulation study of the formation of a non-relativistic pair shock.
Journal of Plasma Physics, 83, 905830104, (2017).

1.29 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).

1.30 Stockem A., BRET A., Sinha U.
Shock formation in magnetised electron-positron plasmas: mechanism and timing.
New Journal of Physics, 18, 105002, (2016).

1.31 BRET A.
Particles trajectories in Weibel magnetic filaments with a flow-aligned magnetic field.
Journal of Plasma Physics, 82, 905820403, (2016).

1.32 BRET A.
Hierarchy of instabilities for two counter-streaming magnetized pair beams.
Physics of Plasmas, 23, 62122, (2016).

1.33 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).

1.34 Marcowith A, BRET A., Bykov A., Dieckmann M.E., Drury L, Lembège B, Lemoine M., Morlino G, Murphy
The microphysics of collisionless shock waves (REVIEW ARTICLE).
Reports on Progress in Physics, 79, 46901, (2016).

1.35 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).

1.36 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).

1.37 BRET A.
Particles trajectories in magnetic filaments.
Physics of Plasmas, 22, 72116, (2015).

1.38 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).

1.39 BRET A.
Collisional behaviors of astrophysical collisionless plasmas (REVIEW ARTICLE).
Journal of Plasma Physics, 81, 455810202, (2015).

1.40 Mendonca JT, Haas F., BRET A.
Influence of flavor oscillations on neutrino beam instabilities.
Physics of Plasmas, 21, 92117, (2014).

1.41 BRET A., Stockem A., Narayan R., Silva L.O.
Collisionless relativistic shock formation: full formation mechanism and timing.
Physics of Plasmas, 21, 72301, (2014).

1.42 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).

1.43 BRET A.
Robustness of the filamentation instability in arbitrarily oriented magnetic field: Full 3D calculation.
Physics of Plasmas, 21, 22106, (2014).

1.44 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).

1.45 BRET A.
Robustness of the filamentation instability for asymmetric plasma shells collision in arbitrarily oriented ma
Physics of Plasmas, 20, 104503, (2013).

1.46 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).

1.47 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).

1.48 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).

1.49 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).

1.50 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).

1.51 Niemiec J., Pohl M., BRET A., Wieland V.
Nonrelativistic Parallel Shocks in Unmagnetized and Weakly Magnetized Plasmas.
Astrophysical Journal, 759, 73, (2012).

1.52 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 remnar
Plasma Physics and Controlled Fusion, 54, 85015, (2012).

1.53 BRET A., Piriz A. R. , Tahir N.A.
Harmonic analysis of irradiation asymmetry for cylindrical implosions driven by high-frequency rotating io
Physical Review E, 85, 36402, (2012).

1.54 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).

1.55 Dieckmann M.E., Sarri G, Murphy G, BRET A., Romagnani L., Kourakis I, Borghesi M, Ynnerman A, Dru
PIC simulation of a thermal anisotropy-driven Weibel instability in a circular rarefaction wave.
New Journal of Physics, 14, 23007, (2012).

1.56 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).

1.57 Haas F., BRET A.
Nonlinear low-frequency collisional quantum Buneman instability.
Europhysics Letters, 97, 26001, (2012).

1.58 BRET A.
Rigorous merging of Two-Stream and Buneman instabilities.
Physica Scripta, 84, 65507, (2011).

1.59 Nakar E., BRET A., Milosavljevic M
Two-stream-like Instability in Dilute Hot Relativistic Beams and Astrophysical Relativistic Shocks .
Astrophysical Journal, 738, 93, (2011).

1.60 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).

1.61 BRET A., Perez Alvaro E
Robustness of the Weibel instability as shock mediator in arbitrarily oriented magnetic field.
Physics of Plasmas, 18, 80706, (2011).

1.62 BRET A., Haas F.
Quantum kinetic theory of the filamentation instability.
Physics of Plasmas, 18, 72108, (2011).

1.63 BRET A.
Intuitive calculation of the relativistic Rayleigh-Taylor instability linear growth rate.
Laser and Particles Beams, 29, 255, (2011).

1.64 BRET A., Gremillet L., Dieckmann M.E.
Multidimensional Electron Beam-Plasma Instabilities in the Relativistic Regime (REVIEW ARTICLE).
Physics of Plasmas, 17, 120501, (2010).

1.65 Murphy G, Dieckmann M.E., BRET A., Drury L
Magnetic field amplification and electron acceleration to near-energy equipartition with ions by a mildly re
quasi-parallel plasma protoshock.
Astronomy & Astrophysics, 524, 84, (2010).

1.66 BRET A., Dieckmann M.E., Gremillet L.
Recent progresses in relativistic beam-plasma instability theory.
Annales Geophysicae, 28, 2127, (2010).

1.67 BRET A.
Collisional and collisionless beam plasma instabilities.
Laser and Particles Beams, 28, 491, (2010).

1.68 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).

1.69 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).

1.70 BRET A., Gremillet L., Bénisti D.
Exact relativistic kinetic theory of the full unstable spectrum of an electron beam-plasma system with Ma
Physical Review E, 81, 36402, (2010).

1.71 Niemiec J., Pohl M., BRET A., Stroman T.
Aperiodic Magnetic Turbulence Produced By Relativistic Ion Beams.
Astrophysical Journal, 709, 1148, (2010).

1.72 Dieckmann M.E., BRET A.
Electric field generation by the electron beam filamentation instability: Filament size effects.
Physica Scripta, 81, 15502, (2010).

1.73 Haas F., BRET A., Shukla P.K.
Physical interpretation of the quantum two-stream instability.
Physical Review E, 80, 66407, (2009).

1.74 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).

1.75 BRET A.
Stable transport in proton driven Fast Ignition.
Physics of Plasmas, 16, 94505, (2009).

1.76 BRET A.
Weibel, Two-Stream, Filamentation, Oblique, Bell, Buneman... which one grows faster ? .
Astrophysical Journal, 699, 990, (2009).

1.77 BRET A., Marin Fernandez FJ., Anfray JM.
Unstable spectrum of a relativistic electron beam interacting with a quantum collisional plasma: applicatic
Ignition Scenario.
Plasma Physics and Controlled Fusion, 51, 75010, (2009).

1.78 Dieckmann M.E., BRET A.
PIC simulation of an electron double layer in a nonrelativistic plasma flow: Electron acceleration to ultrare
speeds.
Astrophysical Journal, 694, 154, (2009).

1.79 BRET A.
Fast growing instabilities for non-parallel flows.
Physics Letters A, 373, 871, (2009).

1.80 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).

1.81 BRET A., Deutsch C.
Correlated stopping power of a chain of N charges.
Journal of Plasma Physics, 74, 595, (2008).

1.82 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).

1.83 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).

1.84 BRET A., Gremillet L., Bénisti D., Lefevbre E
Exact relativistic kinetic theory of an electron beam-plasma system: hierarchy of the competing modes in
Physical Review Letters, 100, 205008, (2008).

1.85 BRET A.
Filamentation instability in a quantum magnetized plasma.
Physics of Plasmas, 15, 22109, (2008).

1.86 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).

1.87 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).

1.88 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).

1.89 BRET A.
Filamentation instability in a quantum plasma.
Physics of Plasmas, 14, 84503, (2007).

1.90 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).

1.91 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).

1.92 BRET A., Gremillet L., Bellido JC.
How really transverse filamentation instability is ?.
Physics of Plasmas, 14, 32103, (2007).

1.93 BRET A., Deutsch C.
About the most unstable modes encountered in beam plasma interaction physics.
Laser and Particles Beams, 25, 117, (2007).

1.94 BRET A.
Quasi exact model for the anisotropy driven Weibel instability all over Fourier space.
Contributions to Plasma Physics, 47, 133, (2007).

1.95 BRET A.
Beam plasma dielectric tensor with Mathematica.
Computer Physics Communications, 176, 362, (2007).

1.96 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).

1.97 BRET A.
A simple analytical model for the Weibel instability.
Physics Letters A, 359, 52, (2006).

1.98 BRET A., Dieckmann M.E., Deutsch C.
Oblique electromagnetic instabilities for a hot relativistic beam interacting with a hot and magnetized plas
Physics of Plasmas, 13, 82109, (2006).

1.99 BRET A., Deutsch C.
Density gradient effects on beam plasma linear instabilities for fast ignition scenario.
Laser and Particles Beams, 24, 269, (2006).

1.100 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.
Journal of Physics IV, 133, 283, (01/06/2006).

1.101 BRET A.
Oblique electromagnetic instabilities for an ultra relativistic electron beam passing through a plasma.
Europhysics Letters, 74, 1027, (2006).

1.102 BRET A., Deutsch C.
A fluid approach to linear beam plasma electromagnetic instabilities.
Physics of Plasmas, 13, 42106, (2006).

1.103 BRET A., Deutsch C., Firpo M.-C.
Between Two Stream and Filamentation Instabilities: Temperature and collisions effects.
Laser and Particles Beams, 24, 27, (2006).

1.104 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).

1.105 BRET A., Deutsch C.
Stabilization of the filamentation instability and the anisotropy of the background plasma.
Physics of Plasmas, 13, 22110, (2006).

1.106 BRET A., Deutsch C.
Beam plasma electromagnetic instabilities in a smooth density gradient: Application to the Fast Ignition S
Physics of Plasmas, 12, 102702, (2005).

1.107 BRET A., Deutsch C.
Hierarchy of beam plasma instabilities up to high beam densities for Fast Ignition Scenario.
Physics of Plasmas, 12, 82704, (2005).

1.108 Deutsch C., BRET A., Fromy P.
Mitigation of Electromagnetic instabilities for Fast Ignition Scenario.
Contributions to Plasma Physics, 45, 254, (2005).

1.109 Deutsch C., BRET A., Fromy P.
Mitigation of electromagnetic instabilities in fast ignition scenarii.
Laser and Particles Beams, 23, 5, (2005).

1.110 BRET A., Deutsch C.
Mixed two-stream filamentation modes in a collisional plasma.
Physics of Plasmas, 12, 82109, (2005).

1.111 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 superde
Physical Review E, 72, 26402, (2005).

1.112 BRET A., Firpo M.-C., Deutsch C.
Electromagnetic instabilities for relativistic beam-plasma interaction for whole k space: non relativistic be
plasma temperature effects.
Physical Review E, 72, 16403, (2005).

1.113 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).

1.114 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).

1.115 BRET A., Firpo M.-C., Deutsch C.
Bridging the Gap between Two Stream and Filamentation Instabilities.
Laser and Particles Beams, 23, 375, (2005).

1.116 BRET A., Firpo M.-C., Deutsch C.
Collective electromagnetic modes for beam-plasma interaction for whole k space.
Physical Review E, 70, 46401, (2004).

1.117 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).

1.118 Deutsch C., BRET A., Martinez-Val J.M., Tahir N.A.
Inertial fusion driven by intense cluster ion beams.
Fusion Technology, 31, 1, (1997).

1.119 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).

1.120 BRET A., Deutsch C.
Ion stopping in two-dimensional electron layers.
Europhysics Letters, 25, 291, (1994).

1.121 BRET A., Deutsch C.
Dielectric response function and stopping power of a two-dimensional electron gas.
Physical Review E, 48, 2994, (1993).

1.122 BRET A., Deutsch C.
Straggling of an extended charge distribution in a partially degenerate plasma.
Physical Review E, 48, 2989, (1993).

1.123 BRET A., Deutsch C.
Stopping power of extended cluster and ion charge distributions in an arbitrarily degenerated electron flu
Physical Review E, 47, 1276, (1993).

2. Conferences - Invited Talks

2.1 12 years of work on collisionless shocks with Ramesh.
The Event Horizon and Beyond - Celebrating 50 Years of Ramesh Narayan, Cambridge, USA, 6/2024.

2.2 Bridging the gap between collisional and collisionless shock waves.
16th International Conference on Plasma Science and Applications, Lucknow, India (Zoom), 12/2023.

2.3 Bridging the gap between collisional and collisionless shock waves.
65th Annual Meeting of the APS Division of Plasma Physics, Denver, USA, 10/2023.

2.4 Collisionless shocks do not always fulfil the Rankine-Hugoniot conditions: Possible role in ICF?.
Workshop on Laboratory Astrophysics, ELI Beamline, Prague, Czech Republic, 6/2023.

2.5 Do collisionless shocks fulfil the rankine-hugoniot conditions?.
10th International Conference on the Frontiers of Plasma Physics and Technology, Kathmandu, Nepal, 3

2.6 Do collisionless shocks fulfill the Rankine-Hugoniot conditions? .
Sharp Workshop on Collisionless Shocks, Finnish Meteorological Institute, Helsinki, Finland, 10/2022.

2.7 PIC simulations of strongly magnetized parallel collisionless shocks in pair plasmas.
2nd International Conference on Plasma Theory and Simulations, Lucknow, India (Zoom), 6/2022.

2.8 Strongly magnetized parallel collisionless shocks in pair plasmas.
63rd Annual Meeting of the APS Division of Plasma Physics, Pittsburgh, USA, 11/2021.

2.9 Density jump as a function of magnetic fied strength for collisionless shocks in pair plasmas: the perpend
7th Workshop Micro-Astro-Chocs, Montpellier, France, 6/2019.

2.10 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
9th International Conference on the Frontiers of Plasma Physics and Technology, Colombo, Sri Lanka, 4

2.11 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
6th Workshop Micro-Astro-Chocs, Guyancourt, France, 10/2018.

2.12 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
HED@FAIR Annual Meeting, Ciudad Real, Spain, 10/2018.

2.13 Inhibition d'un choc MHD en présence d'un champ magnétique parallèle.
4th Workshop Micro-Astro-Chocs, Paris, France, 6/2017.

2.14 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.

2.15 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, 4/

2.16 Formation d'un choc sans collisions et trajectoires de particules chargées dans des filaments magnétiqu
2nd Workshop Micro-Astro-Chocs, Paris, France, 5/2016.

2.17 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.

2.18 Collisional behaviors of astrophysical collisionless plasmas.
AGU Fall Meeting, San Francisco, USA, 12/2015.

2.19 The formation of a collisionless Weibel shock.
Atelier Chocs sans Collisions, Bordeaux, France, 5/2014.

2.20 The Formation of a Collisionless Shock.
6th International Conference on the Frontiers of Plasma Physics and Technology, Gaborone, Botswana,

2.21 Collisionless shock formation.
International Space Science Institute (ISSI) workshop "Fermi Shock Acceleration Process: From Non-Re
Ultra-Relativistic Shocks", Bern, Switzerland, 12/2012.

2.22 Spontaneous electromagnetic fluctuations, beam-plasma instabilities and collisionless shock formation.
Atelier National Hautes Energies, Paris, France, 10/2012.

2.23 Collisionless shock formation.
International Topical Conference on Plasma Science: Advanced Plasma Concepts, Faro, Portugal, 9/201

2.24 Beam-plasma instabilities in Quantum Plasmas.
International Topical Conference on Plasma Science: Strongly Coupled Ultra-cold and Quantum Plasma
Portugal, 9/2011.

2.25 Introduction to microinstabilities in collisionless shocks I-linear theory.
International Space Science Institute (ISSI) workshop "Fermi Shock Acceleration Process: From Non-Re
Ultra-Relativistic Shocks", Bern, Switzerland, 2/2011.

2.26 Recent progresses in Relativistic beam-plasma instabilities.
Dynamical Processes in Space Plasmas (Isradynamics), Ein Bokek, Israel, 4/2010.

2.27 Plasma Instabilities in Relativistic Shocks.
Nonlinear Processes in Astrophysical Plasmas: Particle Acceleration, Magnetic Field Amplification, and F
Signatures, Kavli Institute for Theoretical Physics, Santa Barbara, USA, 9/2009.

2.28 Aperiodic Magnetic Turbulence Produced by Streaming CRs.
KITP Program: Particle Acceleration in Astrophysical Plasmas, Kavli Institute for Theoretical Physics, Sa
USA, 7/2009.

2.29 Streaming instabilities in the relativistic regime.
12th Marcel Grossmann Meeting on General Relativity and Gravitation, Paris, France, 7/2009.

2.30 A unified kinetic model of relativistic electron beam-plasma instabilities.
Rencontre CIRM 2008: Nouvelles voies pour la modélisation de l'interaction laser-matière, Marseille, Fra

2.31 Instabilities of a relativistic electron beam in a plasma.
Kinetic Modelling of Astrophysical Plasmas, Cracow, Poland, 10/2008.

2.32 Fast Ignitor Physics.
XII Latino-American Workshop on Plasma Physics , Caracas, Venezuela, 9/2007.

2.33 An exact linear kinetic model of the fully relativistic current filamentation instability with smooth distributio
Fifth International Conference on Inertial Fusion Sciences and Applications, Kobe, Japan, 9/2007.

2.34 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, 3/200

2.35 Fast Ignition-related kinetic simulations of hot electron transport.
33nd EPS Plasma Physics Conference, Rome, Italy, 6/2006.

2.36 Oblique Instabilities in Relativistic Electron Beam Plasma Interaction.
33nd EPS Plasma Physics Conference, Rome, Italy, 6/2006.

2.37 Beam plasma electromagnetic instabilities in a smooth density gradient.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2006.

2.38 Bridging the Gap between Two-Stream and Filamentation Instabilities.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 2/2004.

2.39 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 Strongly Magnetized Parallel Collisionless Shocks in Pair Plasmas.
42th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
(Zoom), 1/2022.

3.2 Can We Trust MHD Jump Conditions for Collisionless Shocks?.
41th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
(Zoom), 2/2021.

3.3 Density jump as a function of magnetic field for collisionless shocks in pair plasmas: The perpendicular c
40th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
1/2020.

3.4 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
61st Annual Meeting of the APS Division of Plasma Physics, Fort Lauderdale, Florida, 10/2019.

3.5 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
XXXVII Bienal de la Real Sociedad Española de Física, Zaragoza, España, 7/2019.

3.6 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
39th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
1/2019.

3.7 On the Formation and Properties of Fluid Shocks and Collisionless Shock in Astrophysical Plasmas.
45th EPS Conference on Plasma Physics, Praga, Republica Checa, 7/2018.

3.8 Collisional and collisionless issues in shock physics.
38th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
1/2018.

3.9 Kinetic inhibition of MHD shocks in the vicinity of a parallel magnetic field.
APS Plasma Physics Meeting, Milwaukee, USA, 10/2017.

3.10 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, Hirsche
1/2017.

3.11 Shock Formation in Electron-Ion Plasmas: Mechanism and Timing.
APS Plasma Physics Meeting, San Jose, USA, 10/2016.

3.12 Theory of the formation of a collisionless shock.
36th International Workshop on High Energy Density Physics with Intense Ion and Laser Beams, Hirsche
1/2016.

3.13 Comparing collisionless shocks formation in pair and electron/ion plasmas.
42nd EPS Conference on Plasma Physics, Lisbon, Portugal, 6/2015.

3.14 Collisionless Weibel shocks: Full formation mechanism and timing.
56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, 10/2014.

3.15 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.

3.16 Energy and climate: A global perspective.
Congress Energy and Environment Knowledge Week, Toledo, Spain, 11/2013.

3.17 Collisionless shock formation, spontaneous electromagnetic fluctuations, and streaming instabilities.
55th Annual Meeting of the APS Division of Plasma Physics, Denver, USA, 11/2013.

3.18 Aspectos teóricos del escenario “Fireball” para Brotes de Rayos Gamma.
XXXIV Bienal de Física de la RSEF, Valencia, Spain, 7/2013.

3.19 The formation of a collisionless shock.
33rd International Workshop on Physics of High Energy Density in Matter, Hirschegg, Austria, 1/2013.

3.20 Theoretical aspects of the Fireball model .
Fall 2012 gamma-ray burst symposium, Marbella, Spain, 10/2012.

3.21 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2012.

3.22 Inestabilidad de filamentación con campo magnético arbitrariamente orientado.
XXXIII Reunión Bienal de la RSEF, Santander, Spain, 9/2011.

3.23 Kinetic studies of nonrelativistic parallel shocks.
32st International Cosmic Ray Conference, Beijing, China, 8/2011.

3.24 On the proton to electron mass ratio in particle-in-cell simulations.
38th EPS Plasma Physics Conference, Strasbourg, France, 6/2011.

3.25 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.

3.26 Collisional and collisionless beam plasma instabilities.
52th APS Plasma Physics Meeting, Chicago, USA, 11/2010.

3.27 Collisional and collisionless beam plasma instabilities.
37th EPS Plasma Physics Conference, Dublin, Irland, 6/2010.

3.28 Recent results on relativistic electron beam-plasma instabilities.
Direct Drive and Fast Ignition Workshop, London, UK, 4/2010.

3.29 Inestabilidades Haz-Plasma en Régimen Relativista: Papel en Fusión Termonuclear y Astrofísica.
XXXII Bienal de Física de la RSEF, Ciudad Real, Spain, 9/2009.

3.30 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.

3.31 Unstable spectrum of a relativistic electron beam interacting with a quantum collisional plasma: applicatic
Ignition Scenario.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 2/2009.

3.32 Exact Relativistic Kinetic Theory of an Electron Beam-Plasma System.
6th Direct Drive and Fast Ignition Workshop, Lisbon, Portugal, 5/2008.

3.33 Dominant Unstable Mode in Fast Electron Beam Plasma Interaction.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2008.

3.34 Onset of Coherent Electromagnetic Structures In the REB-DT Fuel Interaction for Fast Ignition.
APS Plasma Physics Meeting, Orlando, USA, 11/2007.

3.35 Dominant unstable mode in fast electron beam plasma interaction.
APS Plasma Physics Meeting, Orlando, USA, 11/2007.

3.36 Recent progresses in relativistic beam/plasma electromagnetic instabilities.
Fifth international meeting Theory and numerical simulations of the direct drive inertial fusion, Madrid, Sp

3.37 Surprises in relativistic beam plasma instabilities.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2007.

3.38 Unstable oblique electromagnetic modes in the Fast Ignition Scenario.
16th International Symposium on Heavy Ion Inertial Fusion, St Malo, France, 7/2006.

3.39 Fluid approach to relativistic beam/plasma electromagnetic instabilities.
Fourth international meeting Theory and numerical simulations of the direct drive inertial fusion, Bordeau 3/2006.

3.40 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.

3.41 Characterization of the initial filamentation of a relativistic electron beam passing through a plasma.
32nd EPS Plasma Physics Conference, Tarragona, Spain, 6/2005.

3.42 Taming of Electromagnetic Instabilities in Fast Ignition Scenarios For ICF and REB Stopping.
Current Trends in International Fusion Research, Washington DC, USA, 3/2005.

3.43 Density gradient effects on beam plasma instabilities for Fast Ignition Scenario.
Workshop on Simulations and theoretical developments on Direct-Drive Inertial Confinement Fusion, Tol 3/2005.

3.44 Between Two-Stream and Filamentation Instabilities: Temperature effects.
Physics of High Energy Density in Matter Workshop, Hirschegg, Austria, 1/2005.

3.45 Bridging the Gap between Two-Stream and Filamentation Instabilities.
2004 International Symposium on Heavy Ion Inertial Fusion, Princeton, USA, 6/2004.

3.46 Coulombian Cluster Fragmentation.
Journée Statistiques l'ESPCI, Paris, France, 1/1995.

4. Conferences - Posters

4.1 Inadequacy of magnetohydrodynamics to model shock waves in some Inertial Confinement Fusion settin
15th International Symposium on Fusion Nuclear Technology, Las Palmas de Gran Canaria, Span, 9/202

4.2 PIC simulations of strongly magnetized parallel collisionless shocks in pair plasmas.
48th EPS Conference on Plasma Physics, Maastricht, Netherlands (Online), 6/2022.

4.3 Bridging the gap between collisional and collisionless shock waves.
47th EPS Conference on Plasma Physics, Sitges, Spain (Online), 6/2021.

4.4 Density jump as a function of magnetic field strength for parallel collisionless shocks in pair plasmas.
American Geophysical Union Fall Meeting, Washington, EEUU, 12/2018.

4.5 Cluster ion beam for ICF: A renewal.
3rd International Conference on High Energy Physics, Rome, Italy, 12/2017.

4.6 Inhibition of mhd-shock in the presence of a parallel magnetic field.
44nd EPS Conference on Plasma Physics, Belfast, UK, 6/2017.

4.7 Collisionless shocks formation in pair plasmas.
42nd EPS Conference on Plasma Physics, Lisbon, Portugal, 6/2015.

4.8 Assessing the effect of traffic electrification on GHG emissions.
Congress Energy and Environment Knowledge Week, Toledo, Spain, 10/2014.

4.9 Robustness of the filamentation instability in arbitrarily oriented magnetic field.
56th Annual Meeting of the APS Division of Plasma Physics, New Orleans, 10/2014.

4.10 Teoría de la formación de un choque no colisional.
XXXIV Bienal de Física de la RSEF, Valencia, Spain, 7/2013.

4.11 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Fall 2012 gamma-ray burst symposium, Marbella, Spain, 10/2012.

4.12 Harmonic analysis of irradiation asymmetry for cylindrical implosions driven by high-frequency rotating io
19th International Symposium on Heavy Ion Inertial Fusion, Berkeley, USA, 8/2012.

4.13 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
NRAO-NAASC 2012 Workshop Outflows, Winds and Jets: From Young Stars to Supermassive Black Ho
Charlotte, USA, 3/2012.

4.14 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
Seventh Conference on Inertial Fusion Sciences and Applications, Bordeaux, France, 9/2011.

4.15 Relativistic filamentation instability in an arbitrarily oriented magnetic field.
38th EPS Plasma Physics Conference, Strasbourg, France, 6/2011.

4.16 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.

4.17 Exact relativistic kinetic theory of the full unstable spectrum of an electron-beam-plasma system with Ma
distribution functions.
52 APS Plasma Physics Meeting, Chicago, USA, 11/2010.

4.18 Kinetic studies of wave-particle interactions in cosmic-ray acceleration.
38th Assembly of Committee on Space Research (COSPAR), Bremen, Germany, 7/2010.

4.19 Magnetic Turbulence Generated by Streaming Cosmic Rays in the Precursor of Parallel Shocks.
11th High Energy Astrophysics Divison Meeting , Haiwaii, USA, 3/2010.

4.20 Negative energy modes and the quantum two-stream instability.
51 APS Plasma Physics Meeting, Atlanta, USA, 11/2009.

4.21 Exact relativistic kinetic theory of an electron beam-plasma system hierarchy of the competing modes in
parameter space.
35th EPS Conference on Plasma Physics, Hersonissos, Greece, 6/2008.

4.22 Beam plasma electromagnetic instabilities in a smooth density gradient: Applications to ICF fast ignition.
APS Plasma Physics Meeting, Orlando, USA, 11/2007.

4.23 Magnetic field effects on instabilities driven by a field-aligned relativistic electron beam and bulk electron
34th EPS Conference on Plasma Physics, Warsaw, Poland, 7/2007.

4.24 PIC simulations of relativistic electron flows: The fastest-growing mixed mode and the electromagnetic fir instability.
34th EPS Conference on Plasma Physics, Warsaw, Poland, 7/2007.

4.25 Oblique Electromagnetic Modes for a Hot REB in a Hot and Magnetized Plasma.
APS Plasma Physics Meeting, Philadelphia, USA, 10/2006.

4.26 Hierarchy of beam plasma instabilities up to high beam densities for Fast Ignition Scenario.
APS Plasma Physics Meeting, Denver, USA, 10/2005.

4.27 Interplay of collisions with quasi-linear growth rates of relativistic e-beam driven instabilities in a superder
APS Plasma Physics Meeting, Denver, USA, 10/2005.

4.28 Collective Electromagnetic Modes for beam-plasma interaction in whole k space.
APS Plasma Physics Meeting, Savannah, USA, 11/2004.

4.29 Correlated Stopping Power in 2D.
APS Plasma Physics Meeting, New Orleans, USA, 11/1998.

4.30 Slowing down of ions in 2D plasma.
Meeting plasma APS, Minneapolis, USA, 11/1997.

4.31 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).

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 Fisica - Comunicaciones Cientificas, , 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 fil
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, 11/199
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 Collisionless shocks do not always fulfill the Rankine-Hugoniot condition.
Black Hole Initiative, Harvard University, 14/07/2023

6.2 Collisionless shocks do not always fulfil the Rankine-Hugoniot conditions. ¿Possible role in ICF?.
Instituto de Fusión Nuclear « Guillermo Velarde », Universidad Politécnica de Madrid , Madrid, Spain, 14

6.3 The formation of a collisionless shock.
Bar-Ilan University,Tel-Aviv, Israel, 25/01/2023

6.4 Counter-streaming instabilities in the relativistic regime.
Bar-Ilan University,Tel-Aviv, Israel, 22/01/2023

6.5 Collisionless shocks in plasmas: when the density jump and the shock front do not obey MHD (at all).
Princeton University, USA, 15/07/2022

6.6 Collisionless shocks in plasmas - Front width.
Black Hole Initiative, Harvard University, USA, 13/07/2022

6.7 Collisionless shocks in plasmas - Density jump.
Black Hole Initiative, Harvard University, USA, 08/07/2022

6.8 Collisionless shocks in plasmas, An overview .
Bar-Ilan University, Israel (Zoom), 06/12/2021

6.9 Counter-streaming instabilities in the relativistic regime.
Desy, Germany (Zoom), 18/11/2020

6.10 Relativistic beam-plasma instabilities.
Desy, Germany (Zoom), 17/09/2020

6.11 Current status of nuclear fusion research.
Black Hole Initiative, Harvard University, USA, 21/06/2018

6.12 Collisionless plasma shocks: Properties, interests, and similarities to fluid shocks.
MIT, USA, 14/06/2018

6.13 3 not (so) trivial conditions for shock particle acceleration.
Black Hole Initiative, Harvard University, USA, 11/06/2018

6.14 Inhibition of MHD-shock in the presence of a parallel magnetic field .
Black Hole Initiative, Harvard University, USA, 04/06/2018

6.15 Inhibition of MHD-shock in the presence of a parallel magnetic field.
Institute of Space Science, Barcelona, Spain, 20/01/2017

6.16 New wine into old wineskins: collisionless shocks in plasmas.
UCLA, USA, 19/07/2016

6.17 New wine into old wineskins: collisionless shocks in plasmas.
MIT, USA, 13/07/2016

6.18 New wine into old wineskins: collisionless shocks in plasmas.
Stanford Linear Accelerator, USA, 16/12/2015

6.19 New wine into old wineskins: collisionless shocks in plasmas.
Ecole Normale Supérieure, Lyon, France, 11/12/2015

6.20 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Collisionless Shocks in Plasmas.
Strathclyde University, Glasgow, UK, 09/03/2015

6.21 The formation of a collisionless shock.
ITC Summer Seminars, Harvard-Smithsonian Center for Astrophysics, 26/06/2014

6.22 The formation of a collisionless shock.
The University of Texas at Austin, 18/06/2014

6.23 Streaming instabilities in the relativistic regime.
University College Cork, Ireland, 10/03/2014

6.24 Mechanism of formation of collisionless shocks and role in astrophysics.
University College Cork, Ireland, 10/03/2014

6.25 Mechanism of formation of collisionless shocks.
Institut de Ciències de l'Espai, Barcelona, Spain, 08/01/2014

6.26 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Collisionless Shocks in Plasmas.
Universidad Carlos III, Madrid, Spain, 11/12/2013

6.27 Gamma Ray Bursts, High Energy Cosmic Rays and Collisionless Shocks Generation.
Ecole Normale Supérieure, Lyon, France, 31/05/2013

6.28 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Massachusetts Institute of Technology, Cambridge, USA, 19/07/2012

6.29 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Laboratory for Laser Energetics, Rochester, USA, 06/06/2012

6.30 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
The University of Wisconsin, Madison, USA, 26/04/2012

6.31 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
The University of Kansas, USA, 05/04/2012

6.32 Gamma-Ray-Bursts, High-Energy-Cosmic-Rays and Beam-Plasma Instabilities.
Princeton University, USA, 02/03/2012

6.33 Gamma-ray-bursts, high-energy-cosmic-rays and beam-plasma instabilities.
Instituto de Astrofísica de Andalucía, Granada, Spain, 06/10/2011

6.34 Gamma-ray-bursts, high-energy-cosmic-rays and beam-plasma instabilities.
Institut de Ciències de l'Espai, Barcelona, Spain, 18/05/2011

6.35 Streaming Instabilities in the Relativistic Regime: Role in Inertial Fusion and Astrophysics.
Bochum University, Germany, 02/02/2010

6.36 Streaming instabilities in the relativistic regime.
Dublin Institute for Advanced Studies, Ireland, 21/07/2009

6.37 Beam Plasma Instabilities in the Relativistic Regime.
Universidad Rey Juan Carlos, Madrid, Spain, 20/05/2009

6.38 Electromagnetic instabilities in relativistic beam-plasma interactions.
Inst Super Tecnico, Grupo de Laser e Plasma, Lisbon, Portugal, 02/06/2008

6.39 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
Université Paris VI, France, 09/03/2007

6.40 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
LULI, France, 05/12/2006

6.41 Instabilités faisceaux plasma dans le régime relativiste. Progrès récents et rôle en fusion inertielle.
LPMIA, Nancy, 04/12/2006

6.42 About the not so well-known most unstable modes encountered in relativistic beam-plasma interaction.
GSI Darmstad, Germany, 25/10/2005

6.43 Au-delà de l'instabilité double faisceau: Instabilités électromagnétiques dans tout l'espace k pour un syst
LPGP, Orsay, France, 23/09/2005

6.44 Electromagnetic instabilities in all k space for beam-plasma interaction.
CELIA, Bordeaux, France, 18/05/2004

7. Outreach

7.1 Les mathématiques peuvent-elles nous ouvrir à la spiritualité ? Avec Cedric Villani (Médaille Fields 2010)
Forum Veritas France, Zoom, 14/06/2023

7.2 El calentamiento global bajo la lupa.
Canal YouTube Apologos, Zoom, 03/03/2023

7.3 Cambio Climatico: Un colapso es posible.
IV Jornadas Nacionales de Bioética, Alpedrete, Spain, 03/12/2022

7.4 The Big Bang and Apologetics.
YouTube Channel The Sparrow's Call, , 13/11/2022

7.5 Energía y clima: una perspectiva global.
Aula XXI, vinculado a la Associació Baptista Certesa, Valencia, Spain, 04/06/2022

7.6 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio El Porvenir, Madrid, Spain, 20/05/2022

7.7 Peut-on être scientifique et croire en Dieu?.
Forum Veritas France, Zoom, 26/04/2022

7.8 Sommes-nous seuls dans l'univers ? Jacques Arnould et Antoine Bret.
Campus protestant , Zoom, 07/01/2022

7.9 Changement climatique: État des lieux scientifique.
ARocha GBU - Groupe Professional Environnement et Climat, Zoom, 11/05/2021

7.10 Changement climatique: comment, pourquoi?.
ARocha Ambassadeurs, Zoom, 18/03/2021

7.11 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio El Porvenir, Madrid, Spain, 12/03/2021

7.12 Le Big Bang : Ce que c'est, ce que ça n'est pas .
Eglise "Respirer l'Eglise Vivre Ensemblre", Zoom, 04/12/2020

7.13 Objectif 0 émissions: Pourquoi je ne suis pas optimiste.
ARocha Ambassadeurs , Zoom, 16/11/2020

7.14 Le Big Bang : une option comme une autre, ou une hypothèse ayant fait ses preuves ?.
Webinaire Science & Foi, Zoom, 13/11/2020

7.15 Climate Change: How do we know it's happening, and are we causing it? .
Indian Institute of Technology (via Skype), Hyderabad, India, 27/02/2020

7.16 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio El Porvenir, Madrid, Spain, 10/02/2020

7.17 Advanced Seminar: Tips you need to know about climate change and energy.
IE University (6 talks), Madrid, 01/02/2020

7.18 Changement climatique: comment, pourquoi?.
Lycée Saint Joseph d'Ancenis-St Géréon, France, 20/01/2020

7.19 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio Juan de Valdes, Madrid, Spain, 18/12/2019

7.20 Cambio Climatico: un resumen de la ciencia.
Cambio Climatico, la COP25 y desafios para las iglesias, Madrid, Spain, 14/12/2019

7.21 Del Nilo al Big Bang: Física para los que suspendían Física.
Canal YouTube Apologos, , 30/07/2019

7.22 Le Big Bang : une option comme une autre, ou une hypothèse ayant fait ses preuves ?.
Séminaire Science & Foi, Domaine des Courmettes, Nice, France, 28/05/2019

7.23 Energy and Climate: a Global Perspective.
Sorbonne Abou Dhabi, Abou Dhabi, 07/04/2019

7.24 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio El Porvenir, Madrid, Spain, 02/04/2019

7.25 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio Juan de Valdes, Madrid, Spain, 01/04/2019

7.26 Climate Change: How do we know it's happening, and are we causing it? .
Colegio Internacional de Valladolid, Valladolid, España, 05/12/2018

7.27 L'homme est-il responsable du changement climatique ?.
ARocha Switzerland, Lausanna, Switzerland, 01/09/2018

7.28 Elements of climate science.
European Regional Creation Care Conference, Nice, France, 12/09/2017

7.29 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio Juan de Valdes, Madrid, Spain, 05/06/2017

7.30 El cambio climático en cinco preguntas.
ARC-PEACE, Palma de Mallorca, Spain, 11/05/2017

7.31 El cambio climático en cinco preguntas.
IES La Ribera, Palma de Mallorca, Spain, 11/05/2017

7.32 El cambio climático en cinco preguntas.
Collegi Francesc de Borja Moll S'Arenal, Palma de Mallorca, Spain, 11/05/2017

7.33 Cambio climático: Como sabemos que lo hay, y ¿porque?.
Collegio El Porvenir, Madrid, Spain, 16/03/2017

7.34 Por una espiritualidad del cuidado de la Tierra.
Fundación Federico Fliedner, Taller Teológico, Madrid, 07/11/2016

7.35 Advanced Seminar: Tips you need to know about climate change and energy.
IE University (6 talks), Madrid, 01/10/2016

7.36 Peut-on croire à la science du climat ?.
ARocha - COP21, Une réponse chrétienne au changement climatique, Paris, France, 01/12/2015

7.37 Peut-on "croire" à la science climatique ?.
ARocha France, Domaine des Courmettes, France, 01/06/2015

7.38 Energy and Climate: a Global Perspective.
Conservatoire National des Arts des Métiers, LIRSA, Paris, France, 01/05/2015

7.39 El mundo no tiene 6 000 años ¿dónde está el problema?.
Encuentros de Ciencia y Fe, Madrid, 07/03/2015

7.40 Energy and Climate: a Global Perspective.
Strathclyde University, Glasgow, UK, 02/03/2015

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

7.42 Energía y clima: una perspectiva global.
Universidad Castilla-La Mancha - Summer School, , 01/07/2013

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