shocks by reconnection, we have also envisioned, for the first time, a Fermi-like acceleration process within the reconnection site that results a power-law electron distribution $N(E)\propto E^{\alpha_E}$, with α_E=5/2, and a corresponding synchrotron radio power-law spectrum with a spectral index that is compatible with that observed during the flares ($S_\nu \propto \nu^{-0.75}$). We here extend the study above and examine the possibility that the ejection mechanism of relativistic blobs induced by magnetic reconnection can be applied to all classes of black hole-relativisitc jet systems, from microquasars to quasars and active galactic nuclei. We find a scaling law that indicates that a similar mechanism may be occurring.

PAINEL 206

PAIR-PRODUCTION BY STRONG WAKEFIELDS EXCITED IN PLASMAS

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Electron-positron (pair) plasmas are known to be abundant in many astrophysical environments from pulsars to quasars, as well as in our own galaxy and in supernovae remnants. Electron-positron pair production has been the subject of many studies in astrophysics, as well as in theoretical, computational and experimental physics. There are several mechanisms by which electron-positron pairs can be produced. One of them is the trident process, where high-energy electrons, whose kinetic energy exceeds the pair-production threshold $2m_0c^2$, can produce pairs by scattering in the Coulomb potential of a nucleus. Here we consider the production of electron-positron pairs due to accelerated electrons in strong wakefields (plasma waves) excited in plasmas. We analyse two cases: wakefileds excited by neutrinos and lasers. By using a classical fluid description, we investigate the generation of electrostatic wakefields at the plasma wave-breaking limit, and estimate the number of produced pairs. We find that the pair concentrations produced are huge, and in some cases the presence of the magnetic field can increase these values. This result can be very important in studies of astrophysical plasmas and in intense laser-plasma interaction experiments which are aimed to understanding several astrophysical phenomena in laboratory.

PAINEL 207

NOISE-DRIVEN ALFVÉN INTERMITTENCY IN SPACE AND LABORATORY PLASMAS

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Chaos theory provides powerful tools for the study of space plasmas such as solar atmosphere and solar wind (Chian et al., 1998). We study a complex regime of nonlinear Alfvén wave system, where up to four different attractors coexist. In particular, the role of noise in the generation of transient and intermittent behaviors in Alfvén waves modelled by the derivative nonlinear Schrödinger (DNLS) equation is investigated. The study of intermittency is crucial for the understanding of physical processes governing the Alfvén wave propagation in space plasmas, e.g., plasma heating and particle acceleration in solar corona and the Earth? s aurorae. By using the chaos approach, it is shown that the Alfvén intermittency can be seen as a dynamical phenomenon, where the action of external noise triggers the hopping between different coexisting attractors (Rempel et al., 2006). The role of nonattracting chaotic sets known as chaotic saddles in the hopping dynamics is discussed. Since noise sources are always present in space plasmas, it is plausible that the intermittent phenomena observed in real plasma data are in fact a signature of multistable regimes in the presence of noise.

PAINEL 208

PERFORMANCE OF A PERMANENT MAGNET HALL THRUSTER IN A NEA R EARTH MISSION

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Closed Drift Plasma Thrusters, so called Hall Thrusters or SPT (Stationary Plasma Thruster) have been used on several space missions accomplished by Russian and European Space Agencies. They were able to perform station keeping of geosyncronous satellites and near earth orbit transfer missions. Today, the SPT technology is already qualified for commercial space services and they are now being proposed for primary propulsion of spacecrafts on solar system missions. In this work a scenario study of a new type of Hall thruster, with an innovative concept, in near earth orbit space mission is executed. In this new conception an array of permanent magnets is used to produce the main thruster radial magnetic field, thus yielding a substantial decreasing of the total power consumption. A prototype (PHall-01) of a Permanent Magnet Hall Thruster (PMHT) has been set up by one of us and collaborators of the Plasma Laboratory at UnB [1]. Mission requirements and possibilities of future use of