

**IMPULSIVE ELECTRON EVENTS AND LANGMUIR WAVES
ASSOCIATED WITH TYPE III SOLAR RADIO BURSTS**

S. Vidojević

IHIS Techno-Experts Batajnički put 23, 11080 Belgrade, Serbia

E-mail: sonja@matf.bg.ac.rs

Energetic electron beams, ejected and accelerated from the Sun by some violent processes - usually solar flares, interact with the interplanetary plasma and produce Langmuir waves which then convert into radio emissions called type III radio bursts. Understanding of the energy conversion mechanisms in these processes is an important problem in plasma astrophysics. Using data provided by instruments onboard Wind spacecraft, a set of 19 events where Langmuir waves, type III radio bursts and electron beams are observed simultaneously is selected. A model of power-law relation between (1) locally generated Langmuir waves associated with type III solar radio bursts, (2) electron beam energies and (3) electron fluxes is examined. A strong power-law dependence between two of these three physical quantities is found: between electron beam energies and energetic electron fluxes. The value of power-law index, γ , is found to be -2.47 ± 0.06 which is in good agreement with previous investigations. Because of this strong dependence, the model given in the same form (power-law), including all three quantities, is highly unstable numerically. Observational results of Langmuir waves power at given electron energies shown here, support some simulations of electron beam propagation from the Sun to the Earth in weak turbulent regime.