

**GENERATION MECHANISM OF TYPE III RADIO  
EMISSION IN THE SOLAR WIND**

by

**Abraham C.-L. Chian**

**Institute for Space Research - INPE  
São José dos Campos - SP, Brazil**

**ABSTRACT**

Type III radio bursts are a type of solar radio emission produced by electron streams, accelerated either in solar flares or in active storm regions, that penetrate the solar corona and the solar wind. Recent solar wind data indicate strong evidence for occurrence of nonlinear wave-wave interactions associated with type III emission. A new generation mechanism of type III radio bursts at the fundamental electron plasma frequency is discussed. It is shown that the electromagnetic oscillating two-stream instability, driven by two oppositely propagating Langmuir waves, can account for experimental observations. In particular, the major difficulties encountered by the previously considered electromagnetic decay instability are removed.