

## Generation mechanism of the Solar type III radio bursts

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Generation mechanism of the solar type III radio burst has been one of the unsolved remaining problems in the solar physics, although there were many observational and theoretical studies concerning the phenomenon. The most widely believed generation process involves Langmuir wave excitation by the electron beam emitted associated with the solar flare through the bump on the tail instability, then the parametric decay of Langmuir wave into the other Langmuir wave and ion sound wave, and finally the electromagnetic wave ( EM wave ) generation by the nonlinear three wave processes between EM wave, Langmuir wave and ion sound wave for the fundamental mode wave, and the head-on interaction between two Langmuir waves to produce the second harmonic mode wave. This mechanism is certainly applicable to the case of homogeneous plasma ; however, there still remain alternative processes which generate the radiation. One of such process is linear mode conversion from Langmuir wave to EM wave, which assumes the existence of the inhomogeneity in the plasma distribution function. It should be noted that such inhomogeneous plasma distribution is easily created by the compressive MHD waves. The other process is electron cyclotron maser which possibly become important in a very high frequency range of the burst; such burst is generated very close to the sun where strong sunspot magnetic field causes the plasma beta to be small and the assumption of the special homogeneity of the plasma is well satisfied for the very short wave length of EM waves.