

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Emission of ion acoustic waves by acceleration of Langmuir solitons in inhomogeneous plasmas Y. NISHIMURA, Y.A. CHEN, C.Z. CHENG, Y. NISHIDA, Institute of Space and Plasma Sciences, National Cheng Kung University, Taiwan — Emission of ion acoustic waves by acceleration of Langmuir solitons in inhomogeneous plasmas Y.Nishimura, Y.A.Chen, C.Z. Cheng, and Y.Nishida Institute of Space and Plasma Sciences, National Cheng Kung University, Taiwan New phenomena in Langmuir solitons¹ are observed by numerical experiments. Incorporating background density gradient, the Langmuir solitons are accelerated. Ion acoustic waves are emitted during the acceleration phase of the Langmuir solitons which can be regarded as an analogy of charged particles emitting photons by acceleration.² When the electric field rapidly spreads in the presence of the density gradient above the threshold, the density cavity lose the sustaining mechanism by ponderomotive force. The solitons collapse into two ion density clumps. This work is supported by Ministry of Science and Technology of Taiwan, MOST 103-2112-M-006-007 and MOST 104-2112-M-006-019. [1] V.E. Zakharov. Sov. Phys. JETP 35, 908 (1972). [2] P.K.Kaw, Sov. Phys. JETP 55, 839 (1982).

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Date submitted: 24 Jul 2015

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