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Standing helicon induced by a rapidly bent magnetic field in plasmas[1] KAZUNORI TAKAHASHI, SHO TAKAYAMA, ATSUSHI KOMURO, AKIRA ANDO, Tohoku Univ, PLASMA PHYSICS TEAM — An electron energy probability function and an rf magnetic field are measured in an rf hydrogen helicon source, where axial and transverse static magnetic fields are applied to the source by solenoids and to the diffusion chamber by filter magnets, respectively. It is demonstrated that the helicon wave is reflected by the rapidly bent magnetic field and the resultant standing wave heats the electrons between the source and the magnetic filter, while the electron cooling effect by the magnetic filter is maintained. It is interpreted that the standing wave is generated by the presence of spatially localized change of a refractive index. The application to the hydrogen negative ion source used for the neutral beam injection system for fusion plasma heating is discussed.

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