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Radio Imaging Spectroscopy of a Reflective MHD Wave in a Solar Flare SIJIE YU, BIN CHEN, New Jersey Inst of Tech — We report a new type of coherent radio bursts observed by the Very Large Array (VLA) during a two-ribbon flare, which we interpret as MHD waves reflected near a footpoint of flaring loops. In the dynamic spectrum, this burst starts with a positive frequency drift toward higher frequencies before it turns over and drifts toward lower frequencies. The frequency drift rate is around 100 MHz/s, which is much slower than type III radio bursts associated with fast electron beams but close to the intermediate drift bursts (fiber bursts) which are usually attributed to propagating whistler or Alfvenic waves. VLA's unique capability of imaging with temporal and spectral resolution (50 ms and 2 MHz) enables us to trace the spatial evolution of the bursts. We find that the radio source firstly moves downward toward one of the flaring ribbons before it "bounces off" at the lowest height corresponding to the turnover frequency in the dynamic spectrum, and moves upward again. The measured speed in projection is the same order of the typical velocity of Alfvenic or fast-mode MHD waves in the low corona. We conclude that the radio burst is emitted by trapped nonthermal electrons in the flaring loop carried along by a large-scale MHD wave launched during the eruption of a magnetic flux rope.

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