

Abstract Submitted
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Multiple Regions of Radio Quasi-Periodic Pulsations during the Impulsive Phase of a C1.8 Solar Flare YINGJIE LUO, BIN CHEN, SIJIE YU, New Jersey Inst of Tech, MARINA BATTAGLIA, ROHIT SHARMA, University of Applied Sciences and Arts Northwestern Switzerland — Flare-associated Quasi-periodic pulsations (QPPs) can reveal essential energy release, transport, and modulation processes during flares. However, the paucity of spatially resolved observations with a fast time cadence blocks us from improve our understanding of the physical nature of such QPPs. Here, we report ultra-high cadence radio imaging spectroscopy observations of QPPs using data from Karl G. Jansky Very Large Array (VLA) during the impulsive phase of a C1.8-class solar flare on February 18, 2016. The radio QPPs, observed in the 1–2 GHz L band with a sub-second cadence, consist of three spatially distinct radio sources with different physical characteristics, including periodicity, duration, bandwidth, and polarization. Two QPP sources are located near the conjugate footpoints of the brightening flare arcades with the opposite sense of polarization. An additional QPP source coincides with the location of a looptop X-ray source, which also shows a similar quasi-periodic pattern in its light curve. We suggest that the two footpoint radio QPP sources are likely due to electron cyclotron maser emission from trapped energetic electrons, while the looptop radio/X-ray QPP source may be more inherently related to modulations of the flare energy release.

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