Searching for radio signatures of stellar mass ejections with LOFAR

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LOFAR is a novel radio telescope for the frequency range of 10 - 250 MHz. It consists of antenna fields that are arranged as a dense core near Exloo and remote stations all over the Netherlands, and international stations that span baselines up to 1000 km across Europe. LOFAR data are digitized at the station level and sent to a central correlator in Groningen. This provides LOFAR with great flexibility, and enables it to observe multiple beam directions in the sky simultaneously. LOFAR serves all fields of radio astronomy, from the early universe to solar physics. LOFAR science is organized in Key Science Projects (KSPs). One KSP is "Solar Physics and Space Weather with LOFAR". LOFAR's first operational phase has started in December 2012, while commissioning observations are still going on. The Solar KSP has observed the Sun during the commissioning phase, and recorded several solar radio bursts. First results will be presented. LOFAR offers a high sensitivity that enables the detection of solar radio bursts from much greater distances than just 1 AU. LOFAR's capability of observing solar-like stellar radio bursts from sources in the solar neighborhood will be discussed.