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Solar and heliospheric physics with the Low Frequency Array - LOFAR

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The Low Frequency Array (LOFAR) is a novel radio telescope for the frequency range of 30 - 240 MHz. It is a radio interferometer that consists of 77 stations that are organized in a central core at Exloo in the Netherlands, and remote stations across Central Europe. LOFAR will exceed the sensitivity and resolution of existing instruments by more than one order of magnitude. Solar radio radiation in LOFAR's frequency range emanates from the upper corona, and the solar activity manifests itself in flares and coronal mass ejections (CMEs) that are strong radio sources. The impact of this solar activity on the terrestrial environment is commonly referred to as "Space Weather". LOFAR's unique versatility and flexibility will enable studies of the solar activity that are unprecedented in the meter wavelength range. The Solar Physics Department at the AIP has initiated a Key Science Project "Solar Physics and Space Weather with LOFAR", whose scientific topics will be presented.