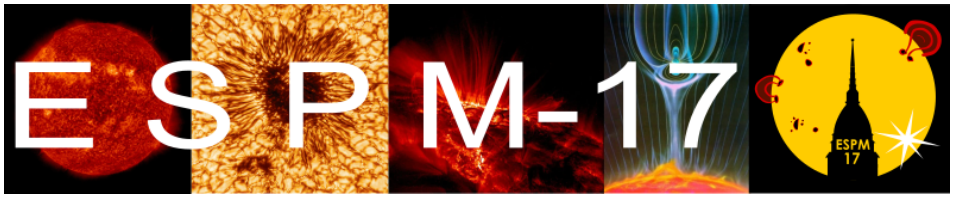

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Simulation of a solar prominence with MURaM

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Solar prominences are cool and dense plasma clouds suspended in the hot solar corona, supported by the magnetic field. They are common features in the solar atmosphere, but their exact formation mechanism is still unclear. We use the radiative magnetohydrodynamic code MURaM to simulate the formation and dynamics of a prominence in the solar atmosphere. MURaM includes the relevant physical processes to simulate the solar photosphere, chromosphere and corona.
We create a stable, dipped magnetic arcade configuration in a 3D simulation box and let it evolve. In the course of the simulation, a solar prominence forms self-consistently. First, a dense plasma seed ejected from the chromosphere randomly settles into a magnetic dip of the field configuration and gets cooled by radiative losses. The resulting pressure drop then drives a strong inflow of hot plasma that condenses onto the feature. Like this, a dynamic, cool and dense structure is built up in the solar corona. In this contribution, I will present the formation mechanism and properties of the simulated prominence for different setups of our configuration, as well as results from the chromospheric (NLTE) extension of the simulation.

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