



Contribution ID: 556

Type: **Poster**

## On the magnetic field concentration in solar coronal loops

*Wednesday, 8 September 2021 14:13 (13 minutes)*

The equilibrium of the axisymmetric cylindrical magnetic flux rope under solar coronal conditions in the light of the paradigms of Severny and Parker connected with the existence of neutralized and non-neutralized electric currents in the solar photosphere is considered. Based on the generalized Gold-Hoyle force-free magnetic field configuration it has been shown that only the non-shielded (non-neutralized) flux ropes can provide the sufficiently strong ( $> 100$  G) magnetic field concentration at quite small ( $< 10$ ) values of the number of turns of magnetic field lines over the loop length. The formation of corona flux ropes and their MHD stability are discussed.

This work was supported in part by the Russian Foundation for Basic Research (project no. 20-52-26006) and the Ministry of Education and Science (NIR no. 0831-2019-0006).

**Student poster?**

**Do you want to be considered for a student poster prize?**

**Primary authors:** KOPYLOVA, Yulia (Pulkovo observatory); TSAP, Yuriy (Crimean Astrophysical Observatory); STEPANOV, Alexander (Pulkovo Observatory)

**Presenter:** TSAP, Yuriy (Crimean Astrophysical Observatory)

**Session Classification:** Poster Session 7.3

**Track Classification:** Session 2 - The Solar Atmosphere: Heating, Dynamics and Coupling