Q48a Formation of Galactic Prominence in Galactic Central Region

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We carried out 2.5-dimensional resistive MHD simulations with cooling/heating to study the formation mechanism of molecular loops observed at Galactic central region (Fukui et al. 2006; Fujishita et al. 2009). Since the molecular loops are low temperature, dense filaments surrounded by hotter, lower density medium. They are similar to solar prominence. We study the formation mechanism of molecular gas in rising magnetic archade based on the in-situ prominences formation model proposed by Kaneko & Yokoyama (2015), in which prominences are formed by thermal instability in helical magnetic flux ropes formed by imposing converging and shearing motion at footpoints of the magnetic arch anchored to the solar surface. We extended this model to Galactic center scale (a few hundreds pc). Numerical results indicate that magnetic reconnection taking place in the current sheet formed inside the rising magnetic arcade creates dense blobs confined by the rising helical magnetic flux ropes. Thermal instability taking place in the flux ropes forms dense ($\sim$30 cm^{-3}), cold molecular filaments floating at high Galactic latitude. The mass of the filament increases with time, and can exceed 10^5 M$_\odot$

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