
Prominence formation and ejection in Cool Stars

Carolina Villarreal D' Angelo*¹ and Moira Jardine¹

¹School of Physics and Astronomy, University of St Andrews (SUPA) – University of St Andrews,
North Haugh, St Andrews, Fife, KY16 9SS, UK, United Kingdom

Abstract

Prominences are cool, mainly neutral clouds that are trapped in the coronae of magnetically active stars. They have been observed in single and binary G and K type stars for many years now, but they have only recently been detected in M dwarfs [Vida et al. 2016]. They carry away both mass and angular momentum when they are ejected and the impact of this mass on any orbiting planets may be important for the evolution of exoplanetary atmospheres. We have recently modelled both the masses and ejection frequencies of such prominences and determined the contribution their ejection makes to the rate of loss of mass and angular momentum of the star. In this talk we describe the trends with fundamental stellar parameters and compare our results with observed prominence masses and lifetimes in a range of stars.

Keywords: stars: activity, stars: magnetic fields, stars: rotation

*Speaker