

Contributed Talk

Splinter HiRes

THE JURČÁK CRITERION: MAGNETIC PROPERTY OF BOUNDARIES IN  
PORES, PROTO-SPOTS, AND UMBRAE

Markus Schmassmann, Philip Lindner, Michael Pircher, Nazaret Bello  
González, Morten Franz, & Rolf Schlichenmaier

*Kiepenheuer-Institut für Sonnenphysik, Freiburg*

The various ways of energy transport in radiatively driven magneto-convection determine the structure of sunspots. At first glance, sunspots are composed of a dark umbra and a brighter penumbra. The transition between umbral and penumbral has only recently been discovered to depend on an invariant magnetic property: a value of 1860 G for the vertical magnetic field component. This Jurčák criterion states that region with values smaller than that value are prone to form a penumbra, and that fully-fledged stable sunspots have their umbral-penumbral boundary at that value. We use HMI@SDO and GRIS@GREGOR spectro-polarimetric data to further investigate the boundaries of pores, proto-spots, and umbrae in order to elaborate on the consequences of the Jurčák criterion for the stability of these magnetic manifestations.