

# **Stellar magnetic fields and signatures of heating**

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A great many measurements of stellar X-ray, ultraviolet, and radio emission have demonstrated that stars with measured or inferred strong magnetic fields show evidence for strong heating in their coronal and chromospheric layers. While the qualitative connection between strong magnetic fields and strong heating is evident, quantitative measures of the correlation and physical models underlying the connection are less clear. I will review the measurements of magnetic field strength and flux in stars with convective zones and the proposed empirical relations between magnetic flux and X-ray flux on the Sun and stars. The emerging relationship between magnetic flux and stellar mass loss rate may indicate an important difference in magnetic geometry between stars with low and high magnetic flux and thus between old and young stars. Magnetic flux tube geometry, which depends on the field filling factor, could play an important role in heating.