

Photospheric Magnetism (Invited Reviewer)

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Abstract

The photosphere is the layer in which most measurements of solar magnetic fields have been and continue to be made due to the relatively strong fields and the availability of sufficiently Zeeman sensitive spectral lines formed in that layer. Hence it is also the layer in which our knowledge of the Sun's magnetic field is the largest. Consequently, observations of photospheric magnetism serve not only to study the magnetic field at the solar surface, providing insights into magnetoconvection, the often fine-scale structure and evolution of small and large magnetic features and the small-scale dynamo acting close to the solar surface. Such observations are also used to extrapolate the magnetic field into the upper solar atmosphere and to infer the structure and the production of the magnetic field in the solar interior from the field's global structuring. In this review the complex structure and dynamics of the photospheric magnetic field will be introduced, and some of the connections with other atmospheric layers will be pointed out.