The magnetic field structure in the Rosette nebula

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Planck has mapped the dust polarized emission over the whole sky, making it possible to trace the Galactic magnetic field structure that pervades the interstellar medium. We combine polarization data from *Planck* with rotation measure observations towards a massive star forming region, the Rosette nebula in the Monoceros molecular cloud, to study its magnetic field structure and the impact of an expanding HII region on the morphology of the field. *Planck* observations show a distinct magnetic field structure in the nebula compared to that of the surrounding medium, as a result of stellar feedback. The change in the magnetic field structure is accompanied by low values of the polarization fraction, below 5%, relative to the much higher intrinsic polarization of dust grains, 19%. We compare the radio and *Planck* observations with the prediction from a model of spherical expansion of an HII region in a uniform medium, to derive the three-dimensional structure and amplitude of the magnetic field.