



## **Effect of Cosmic Rays on atmospheric Biomarker Chemistry on Earth-like Planets with varying magnetospheric Protection in the Habitable Zone of F, G and K-type Stars**

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The search for spectral signatures of life in terms of biomarkers such as ozone or methane in the atmospheres of terrestrial exoplanets requires modeling activity in order to identify the important planetary and stellar parameters. To this end, we are compiling a catalogue of biomarker signatures for a wide range of planetary scenarios. Cosmic rays (galactic or stellar) can impact biomarkers, hence their spectral signature. This effect is usually investigated for planets orbiting M-stars since the habitable zones of such stars are close-in so that planets orbiting in the HZ are likely to be tidally locked. Hence, their magnetic protection against cosmic rays is reduced. However, planets orbiting in the HZ of other stars may also experience a reduced magnetic protection - consider e.g. Venus which does not have an intrinsic magnetic field. To investigate the effect of cosmic rays on planets around F, G, and K stars (hence extend our planetary catalogue), this work studies Earth-like planets orbiting in the HZ of such stars which are subjected to varying levels of cosmic rays.