

Spectropolarization of Synchrotron Radiation in Astrophysics

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The ratio of the polarized synchrotron emission to the total emission, i.e., the polarization degree, is known to be $(p+1)/(p+7/3)$ or $(\alpha +1)/(\alpha +5/3)$, for electrons with a power-law energy distribution of index p , where $\alpha = (p - 1)/2$ is the spectral index. In this article, we first show the limitation of the formula, and then we propose a generalized version of this formula which could serve as a universally applicable formula for estimating the polarization degree.

Primary authors: YAP, Yee Xuan; Mr LAI, Paul C.W (UCL/MSSL); Ms LI, Jiale (UCL/MSSL)

Presenter: YAP, Yee Xuan

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