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The Milky Way disc radial abundance gradient from planetary nebulae reveled by Gaia (poster pitch, online)

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Radial abundance gradients in the Galactic disc are one of the most important observational constraints to study the chemical evolution of the Milky Way galaxy and also other galaxies in the universe. The radial gradient is the result of many physical processes that occur since the formation of the Galaxy, as e.g. the infalling gas to form the disc, the star formation history, radial gas flows and the radial migration of stars. Planetary nebulae (PNe) are the offspring of low and intermediate-mass stars consisting of an expanding, glowing shell of ionised gas ejected from red giant stars late in their lives. They have very intense optical emission lines and some elements observed in PNe are not modified during the progenitor star evolution, making then important tools to probe the Galactic chemical evolution. However, PNe distances are subject of great uncertainties, since, unlike main sequence stars, these objects do not have a physical parameter that is direct dependent of the distance. In this work, we have used Gaia DR3 database in order to derive reliable distances for a sample of 294 Galactic PNe. The radial gradient from the O, S, Ar and Ne are computed using the new distances in the radial range from 3 to 15 kpc. The results are consistent with a flatter gradient than previously found and with a change of the slope around 8 kpc, which coincides with the Milky Way corotation radius.

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