

Search for new gamma-ray binaries among runaway stars

Gamma-ray binaries are systems composed of a massive O or Be-type star and a compact object that emit gamma-rays up to multi-TeV energies. Currently, only 9 of such systems are known, and those containing O-type stars are runaways. Because some properties of these systems are not fully understood, the discovery of new gamma-ray binaries may help to answer many open questions, and eventually may open new ones. To discover new gamma-ray binary systems we search for runaway stars within catalogs of massive stars using Gaia astrometric data. We present here the current status of our project with tens of new runaway O and Be stars identified, together with multi-wavelength information. We will also provide an outlook of the future steps to enlarge the population of gamma-ray binaries.

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