

## **Inhomogeneous stellar winds in gamma-ray binaries**

We study the interaction between pulsar and stellar winds in gamma-ray emitting binaries in the presence of an inhomogeneous stellar wind. In such systems, the acceleration of particles likely occurs at the region of collision between the two winds, which is typically assumed to be smooth. However, the early-type stars that are thought to be present in some gamma-ray binaries, appear to have clumpy winds. During the two-wind interaction, these clumps arrive at the acceleration region, reshape the interaction structure, and subsequently impact the related non-thermal emission. Depending on the adopted stellar wind parameters, the clumps can produce observable fluctuations in the X-ray and GeV bands. Semi-analytical calculations of the dynamical evolution and non-thermal emission are robust enough to simulate both the orbit-modulated large-scale variability and clump-induced small-scale variability of such systems.

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