
Cosmic-Ray Nucleosynthesis in Galactic Interactions

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It has been shown that galactic interaction and mergers can result in large-scale tidal shocks that propagate through interstellar gas. As a result, this can give rise to a new population of cosmic rays, additional to standard galactic cosmic rays present in star-forming galaxies. We investigate the impact of this tidal cosmic-ray population on the nucleosynthesis of lite elements. We especially focus on only extragalactic systems where lithium has been measured in gas phase but which have been disturbed by galactic interactions, namely the Small Magellanic Cloud [1, 2] and the M82. Moreover we also demonstrate that the presence of these tidal shock-waves and may also have far reaching consequences on our understanding of galactic evolution by affecting the far-infrared radio correlation [3] observed in star-forming galaxies and impacting star formation rates estimates.

References

- [1] Prodanović, T., Bogdanović, T., & Urošević, D. 2013, *Physical Review D*, 87, 103014
- [2] Ćiprijanović, A. 2016, *Astroparticle Physics*, 85, 24
- [3] Donevski, D., & Prodanović, T. 2015, *Monthly Notices of Royal Astronomical Society*, 453, 638