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## Particle acceleration and high-energy emission from star-forming galaxies

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The intense star-forming activity typical of star-forming galaxies results in unique conditions for the acceleration of high-energy particles.

The enhanced supernova rate associated with such star formation can in fact transfer a large amount of power to non-thermal particles which, in turn, can lose most of their energy in the dense and perturbed star-forming environment before being able to escape it.

I will discuss the transport conditions in these galaxies and their multi-messenger implications in terms of gamma rays and high-energy neutrinos.

The star-forming activity can also launch and sustain powerful galactic wind bubbles extending for several kiloparsecs.

I will illustrate how particles can be accelerated up to hundreds of PeV at shocks produced in such winds and I will highlight the associated high-energy radiation and its possible detectability with current and upcoming observatories.

Finally, by taking into account the star formation history of the Universe, I will assess the potential contribution of star-forming galaxies to the observed diffuse flux of gamma rays, high-energy neutrinos and cosmic rays at energies beyond the Knee.

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