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The quest for PRS and their link with nebulae

Deep investigation of the environment where the bursts occur is the most promising way to shed light on these mysterious phenomena. Observations of a handful of events indicated different progenitor channels, yielding to distinct location, local environment and host galaxy properties. The recent discovery of a persistent radio source associated with FRB 20201124A and 20240114A supports the nebular model for the continuum emission, circumscribing the progenitors to magnetars (favoured) or hyperaccreting X-ray binaries. In the near future, the advent of new dedicated radio facilities will deliver dozens of arcsec-level localized FRBs per year, improving the statistics on host galaxies and continuum counterparts. The talk aim at reviewing current developments and future prospects of PRS characterisation.

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