

Highlight

PROBING THE IONISED ISM WITH LOFAR PULSAR OBSERVATIONS

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The free electrons in the ionised component of the interstellar medium interact with radio waves in many, frequency-dependent, ways. The advent of highly sensitive low-frequency radio telescopes like LOFAR (the LOw-Frequency AR-ray), in Germany operated by the German LOng-Wavelength (GLOW) consortium, allow unprecedentedly precise measurements of this plethora of effects, probing the ionised gas in the ISM across a wide range of scales: from the smallest density variations causing diffractive scintillation to the large-scale clouds probed by dispersion in decade-long pulsar-timing campaigns.

In this talk, we provide an overview of the capabilities of LOFAR to study the ionised ISM and discuss in some detail the various pitfalls that plague this new window on the ISM. We also briefly highlight the relevance of these studies for so-called pulsar-timing array projects aiming to detect gravitational waves from a cosmological population of supermassive black-hole binaries.