

file appeared as single-peaked. The broad-band spectrum of the pulsar in 1.0-200.0 keV energy range is found to be well described by a partial covering power-law with high energy cut-off continuum model. Several emission lines such as Si, S, Fe are also detected in the pulsar spectrum. We attempted to fit the spectrum using neutral as well as partially ionized absorbers along with the above continuum models yielding similar results. The spectral fitting, however, did not require any Cyclotron Resonance Scattering Feature (CRSF) in the best fit model. To understand the changes in model parameters during the dips in the pulse profile, we carried out pulse phase resolved spectroscopy using data from XIS and PIN. During the dips in the pulse profiles, the value of additional column density was estimated to be high compared to that during the other pulse phases. While using partially ionized absorber, the value of ionization parameter is also higher at the dips in the pulse profiles. This may be the possible reason for the presence of dips up to higher energies.

### **Discovery of an intermittent pulsar: PSR J1839+15**

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**Abstract.** We report the discovery of a new pulsar PSR J1839+15 in the GMRT Galactic Plane Pulsar and Transient Survey (GMGPPTS) carried out with the Giant Metre-wave Radio Telescope (GMRT). The pulsar J1839+15 has a spin period (P) of 549 ms and a dispersion measure (DM) of  $68 \text{ pc-cm}^{-3}$ . We would also like to report intermittent behaviour of the radio emission from this pulsar.

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### **Cold gas at high redshifts**

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**Abstract.** I will discuss the use of semi analytic models of galaxy formation for calculating the cold gas fraction in galaxies. I will apply this to compute the large scale distribution of cold gas at high redshifts and comment on observability of the signal using upgraded and upcoming radio telescopes.