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Constraining the mass and radius of neutron star by future observations

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The mass and radius of neutron star (NS) in the low mass X-ray binary (LMXB) can be measured simultaneously when the observed lightcurve and spectrum show the photospheric radial expansion (PRE). Precise measurements require the distance to the target, information on the radiating surface, and the composition of accreted material. Future observations with large ground-based telescopes such as Giant Magellan Telescope (GMT) and Thirty Meter Telescope (TMT) may reduce the uncertainties in the mass and radius of NS because they could provide information on the composition of accreted material by identifying the companion stars in LMXB. We investigate these possibilities and present our results for selected targets.

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