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Abstract:

We present four candidate binary systems that may host unusually high-mass compact objects. Based on time-domain photometric and spectroscopic observations, our analyses suggest they each contain an invisible compact object with a lower limit of mass of $0.94 M_{\odot}$ to $1.55 M_{\odot}$, higher than the visible components. The unseen components can be either NSs or high-mass WDs. These systems lack detection by any X-ray surveys, and their physical nature remains unidentified. Therefore, we propose to use FAST to detect potential pulsar signals. Successful observations may identify several novel discovered NSs and study their properties in the radio spectrum in depth. We request 4.0 hours of FAST observing time in pulsar searching mode for these targets in total.