

X-ray Variability-Selected Sources in the Galactic Plane

The Galactic Center and Galactic Plane are host to large numbers of highly variable X-ray sources, many of them stellar remnants. The exact nature of the X-ray variability, and the sizes of their populations are unknown in many cases, but could give important evidence as for our understanding of stellar evolution pathways. The STONKS (Search for Transient Object in New observations using Known Sources) pipeline, developed during the XMM2ATHENA project, identifies transient, and other highly variable, X-ray sources in the field of view of observations conducted by XMM-Newton. This is achieved by leveraging a multi-mission catalogue of X-ray sources covering several decades and with more than a million detections. By applying this pipeline to the recently completed multi-year survey of the Galactic Plane conducted by XMM we have successfully identified a new population of highly variable X-ray sources in the direction of the Galactic centre. We present these variability-selected sources, including a new magnetar candidate, several new CV candidates, new X-ray binary candidates, and the existence of pulsations in a γ -Cas analogue star. We then discuss the implications of these populations to the X-ray properties of sources in the Galactic Plane, and how we can use these populations, current and future, to build a fuller understanding of X-ray sources towards the Galactic Centre.