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Exploring on-board X-ray transient detection with Athena - Wide Field Imager

X-ray transients, like novae, GRBs, compact objects, for example, are among the most enigmatic objects in the cosmic sky. The unpredictability of their transient behaviour has been a study of much interest in the recent years. While significant progress has been made in this direction, a more complete understanding of such events is often hampered by the delay in the rapid follow-up of any transient event. An efficient way to mitigate this constraint would be to devise a way for on-board detection of such transient phenomenon so that multi-wavelength follow-up observations can be carried out near simultaneously. The Wide Field Imager (WFI), which is a part of the upcoming X-ray mission Athena, with its 40’ X 40’ field of view can add some valuable contribution to this. In this work, we discuss an algorithm for the on-board detection of such X-ray transients with WFI. We will also present a few test cases for the feasibility test of that algorithm on Swift-XRT data. Finally, we discuss the type of X-ray transients best suited for on-board detection from WFI, their probability of detections and the useful science that can follow.