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Mitigation Strategies against Radiation-Induced Background for the Athena Wide Field Imager (WFI)

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The Advanced Telescope for High ENergy Astrophysics (ATHENA) mission is a major upcoming ESA space-based X-ray observatory due to be launched in 2028, aiming to map the early universe and observe distant black holes. Instrument background from primary solar particles, cosmic rays and the secondaries produced in the shielding are expected to constitute a large fraction of the total noise in images and spectra from the Wide Field Imager (WFI) instrument on ATHENA. Designing an effective system to reduce the background radiation impacting the WFI will be crucial for maximising the instrument's sensitivity. Due to the variety of different background sources, multiple shielding methods may be required to achieve maximum sensitivity in the WFI and in future space-based x-ray experiments. Here we discuss the latest results and strategies for effective instrument background mitigation for the Athena WFI.

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