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The high energy variability of V404 Cygni during the June 2015 outburst

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The black hole binary V404 Cygni exhibited an unprecedentedly bright outburst on 2015, June 15. Since then, many space and ground observing facilities monitored the flux from the source during several weeks, until its decline to a near-quiet state in late July-August. The source was extremely variable at all wavelengths. The radio versus X-ray flux variations are reminiscent of the already observed correlation in this and other black hole sources, in which the luminosity is dominated by jet emission.

The high energy instruments on board INTEGRAL detected an extremely variable emission during both bright and low luminosity phases, with dramatic variations of the hardness ratio on time scales of ~seconds. The analysis of the IBIS and SPI data reveals the presence of hard spectra in the brightest phases, compatible with thermal Comptonization with plasma temperature ~40 keV. On the other hand, the soft (<10 keV) X-ray spectra observed by Swift, Chandra and NuSTAR show large absorption column variations and indication for strong disk outflows. Given the strong hardness variations detected in the range ~20-200 keV, we conclude that the overall variability originates from two distinct components, the first due to absorption and the other originating very close to the central accreting source, most probably related to relativistic ejection events.

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