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### Re-brightening of the black hole candidate MAXI J1659-152

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## Re-brightening of the black hole candidate MAXI J1659-152

ATel #3339; *Y. J. Yang, R. Wijnands (University of Amsterdam)*  
on 11 May 2011; 16:48 UT

Credential Certification: *Rudy Wijnands (rudy@space.mit.edu)*

Subjects: Optical, Ultra-Violet, X-ray, Binary, Black Hole, Transient

Referred to by ATel #: [3358](#), [3379](#), [3506](#), [3517](#)

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We report on our newest Swift observation of the black hole candidate MAXI J1659-152 (ATel #[2873](#), GCN #[11296](#)). One additional 5 ks observation was carried out after our previous report on a sudden drop of the source intensity (ATel #[3298](#)). The observation was taken on 2011-05-06 07:16:10 UT in Photon Counting mode.

The observation shows an unexpected increase of the source intensity. The spectrum can be adequately fitted with an absorbed power-law model. We obtained a column density  $N_{\text{H}}=3.8\pm 1.4 \times 10^{21} \text{ cm}^{-2}$ , and the power-law photon index is  $2.4\pm 0.4$ . The column density is higher than what were measured in our previous observations (ATel #[3201](#), ATel #[3249](#)). By fixing the column density to our previous average value  $3 \times 10^{21} \text{ cm}^{-2}$  (ATel #[3249](#)), we obtained a photon index of  $2.2\pm 0.2$ . The unabsorbed flux measured using the fixed  $N_{\text{H}}$  is  $2.9 \times 10^{-12} \text{ erg cm}^{-2} \text{ s}^{-1}$  (0.3-10 keV), which transfers to a X-ray luminosity of  $1.7 \times 10^{34} \text{ erg/s}$  (assuming a distance  $d = 7 \text{ kpc}$ ). This shows that the luminosity has increased 10 times within  $\sim 2$  weeks.

We analyzed the UV/Optical data as well, and we could detect the source again in some filters compared to previous non-detections (ATel #[3298](#)). Therefore the optical brightness of MAXI J1659-152 has also increased as the X-ray flux intensity increased. Obtained magnitudes or upper limits for all filters are  $v > 18.76$ ;  $b = 19.76 \pm 0.39$ ;  $u > 19.41$ ;  $uvw1 > 19.65$ ;  $uvm2 > 19.70$ ;  $uvw2 = 19.66 \pm 0.26$ .

We thank the Swift team for their arrangement of the observation. This work made use of data supplied by the UK Swift Science Data Centre at the University of Leicester.

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