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Search for Rapidly Varying Eclipsing Binaries with ROTSE-III
FARLEY FERRANTE, ROBERT KEHOE, Southern Methodist University — We present the results of a search for eclipsing binary stars exhibiting rapid optical variations using observations made by the 0.45m Robotic Optical Transient Search Experiment-IIIb (ROTSE-IIIb) telescope located at McDonald Observatory in the Davis Mountains of west Texas. For each candidate in a particular field we analyze the time variation of optical light output as recorded in ROTSE-III images to generate light curves for each night of observations. Examination of the light curve shape determines the variable type and magnitude range. Using a cubic spline fit, multiple nights of observations are then phased into one plot to determine the period and amplitude of variation. After analysis of a star field in the constellation Sagittarius originally imaged by ROTSE-IIIb as a gamma-ray burst (GRB) trigger response, we identified a candidate W UMa-type (EW) contact binary star that was previously uncatalogued. We submitted it to The International Variable Star Index (VSX) for review. The discovery was confirmed and the contact binary is now listed in the VSX catalog.

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