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Optical spectroscopy of PSR B1259-63 around the 2014 periastron passage

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**Abstract content (Max 300 words)
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PSR B1259-63 is a gamma-ray binary system which consists of a 48 ms pulsar in a 3.4 year orbit around a Be star. Of the five known gamma-ray binary systems it is the only one where the nature of the compact object is conclusively known. This makes it an extremely important target for multi-wavelength observations. Near to periastron, the interaction between the pulsar and stellar wind creates a shock front, producing non-thermal emission from radio to TeV energies. The 2010 periastron passage was the first that was observed with the Fermi-LAT telescope and approximately 30 days after the 2010 periastron passage, an unexpected GeV flare was observed, at a time when the other non-thermal emission was already decreasing. A repeat flare event (though on a lower scale) was observed after the 2014 periastron. We report on spectroscopic observations undertaken with the Southern African Large Telescope from approximately 33 days before until 78 days after the 2014 periastron passage. These observations confirmed the variability of the H α and He-I line during this period, as was previously reported. Combined with multi-wavelength results, this suggests that the circumstellar disc is disrupted during periastron. The reported multi-wavelength results are also briefly discussed.

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