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# Spectropolarimetric and seismic study of $\zeta$ Ori A

Aurore Blazere<sup>\*1,2</sup>, Bram Buysschaert<sup>\*†1,3</sup>, and Coralie Neiner<sup>1</sup>

<sup>1</sup>LESIA – Paris-Meudon Observatory – France

<sup>2</sup>Institut de recherche en astrophysique et planétologie (IRAP) – CNRS : UMR5277, Observatoire Midi-Pyrénées, Université Paul Sabatier [UPS] - Toulouse III, Université Paul Sabatier (UPS) - Toulouse III – France

<sup>3</sup>Instituut voor Sterrenkunde, KU Leuven (IVS) – Celestijnenlaan 200D BUS 2401, Belgium

## Abstract

Seismic analysis of magnetic massive pulsators provide strong constraints on stellar structure. Indeed, asteroseismology grants information related to the internal properties of the star, while spectropolarimetry provides information on the stellar surface and its magnetic field.

Recent surveys show that around 10% of massive stars host a detectable magnetic field at their stellar surface. These magnetic fields have a simple geometric configuration, often an oblique dipole, and have a fossil origin, making them stable over many decades. So far, only 11 magnetic O-type stars are known, of which  $\zeta$  Ori A is the only known supergiant. Moreover, it hosts one of the weakest dipolar magnetic fields measured in massive stars.

The BRITE constellation of nanosatellites monitors all stars brighter than  $V=4$  in blue and red filters, and provides high-cadence lightcurves with a long baseline and good duty-cycle. These lightcurves are ideal for asteroseismology and the determination of periodic variability.

During this talk, we present our spectropolarimetric and seismic results for  $\zeta$  Ori A. These results are based on data taken by the high-resolution spectropolarimeter Narval, at TBL, and the first visit of the Austrian BRITE nano-satellites to the Orion Field.

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\*Speaker

†Corresponding author: bram.buysschaert@obspm.fr