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Polarimetric Microlensing as a Tool for Breaking Degeneracies in Compact Object Lensing toward the Galactic Bulge. Marsida Laze

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Gravitational microlensing upon passage of compact objects in front of background stars brightens them and provides a way to investigate the lensing bodies. Nonetheless, photometric light curves by themselves are not sufficient to uniquely constrain important parameters such as mass, distance, and velocity because of the degeneracies. Typical second-order effects like parallax and finite-source size improve the situation; however, a quite promising alternative is polarization measurement. In particular, RGB stars can show detectable polarization in microlensing by symmetry-breaking differential magnification. This study explores the detectability of polarization signals using the FORS2 polarimeter at the VLT with an assumed sensitivity of 0.1%. They show that intense polarization in microlensing events among RGB stars and intermediate-distance lenses is imminent, and with polarimetric microlensing being a promising tool for the improvement of lens characterization and degeneracy resolution.

Classification de Session: Students presentations