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A polarimetric census of Be X-Ray Binaries with FAPOL@NOT

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Late O or early B stars showing Balmer lines in emission and infrared excess are classified as Be stars. Both, the emission in Balmer lines and the infrared excess, have their origin in a circumstellar disk-like decretion structure. Rapid rotation and pulsations are known to be part of the mechanism of formation of such a structure but the process is still unknown. Be stars are also known to show a characteristic polarization due mainly to electron scattering of photons in the disk. Size of the disk, density and orientation with respect to the observer are factors that influence the total degree of polarization observed. They also present a characteristic variation of polarization with wavelength. Be stars accompanied by a compact object (neutron star or black hole) are the most common type of x-ray binary systems with massive optical companion. In these systems, known as Be X-Ray Binary systems (BeXRBs), the disk-like structure is more compact and dense than that in isolated Be stars. We have started the very first polarization census of BeXRBs, with the goal to identify peculiar objects and compare the polarimetric properties of Be stars in binary systems with the isolated ones. We present here the very first results of the survey, showing that Be stars in BeXRBs tend to show higher degrees of polarization than those of isolated Be stars and helping to identify and study some peculiar targets.

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