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Relativistic effects on the synchrotron emission originated from hot spots in the vicinity of Sagittarius A*

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The black hole at the galactic center, Sagittarius A*, is source of variable sub-millimeter, near-infrared (NIR) and X-ray emission. Simultaneous observations in these regimes show strong evidence for correlated flux variations in different wavelength-domains. The strong variability seems to be the result of synchrotron and synchrotron self-Compton radiation from overdensities -or hot spots- in the accretion flow or at the base of a faint jet. Using a numerical code we track the time evolution of the intensity and the detectable polarization properties (linear-polarization degree and angle) produced by such compact sources in the vicinity of the black hole. Here we present the theoretical polarimetric light curves expected in the NIR from different configurations. The polarized NIR emission of Sagittarius A* can be used to constrain the essential parameters of the system like the spin and the inclination by comparing the predicted light curves with the observed ones.