

N35b

Analytical Treatment of Intrinsic Polarization in a Close Binary System Induced by a Geometrically Thin Disk Viewed at Edge-on

近藤正宏 (福大教), 中村泰久 (コンコイ天文台)

The liner polarization induced by stellar envelopes in close binary systems has given various informations about them. Especially the geometrical study of stellar envelope is very interesting because the light from the system preserves the information of the geometrical distribution where the light is scattered.

Simple analytical treatment is considered to describe the variable polarization caused by Thomson scattering in a geometrically and optically thin envelope during the eclipse phase of a close binary system viewed at edge-on. Even if the stars are components of a binary system, the former studies only concerned the effect of occultation of the scattering envelope, but did not concern the effect of eclipse where the scattered intensity from the system should change. Here we examine analytical treatment of the effect of eclipse for several simple envelope models. The assumptions are

1. the light of the system mainly comes from the primary
2. the envelope is optically so thin that no extinction process is occurred in it
3. the scattering of starlight through the circumstellar envelope is considered under the so-called radial streaming approximation(the radiation is emitted radially from the surface of a star.)

We derived some analytical formulae and confirmed the scattered polarization degree shows double peaks around the bottom of eclipse.