

## 12. Demonstration of the influence of partially polarized solar radiation on the environment.

Using the split polarization analyzer try to watch the sky on a sunny day. Initially along a circle lying in a vertical plane (i.e., Solar plane) on which "lies" in addition to the solar disc also points: Brewster BR, Babinet BA and antisolal AR (generally invisible). And of course, the observation point P (= place where we stand), see Fig. 1.

Monitoring begins in Brewster point. We find that sunlight is not polarized. This phenomenon is true up to a point BA. From this point, the partial polarization of sunlight originates. This partial polarization happens in the whole space (incomplete quarter sphere) defining by the plane perpendicular to the solar plane, in which the point M, and the place of the observer P are located. In the point M, the polarization changes from right-handed to left-handed.

The intensity of the polarized light, and thus its electric component is always much lower compared with unpolarized light, from the same source. From experience, we know that the light coming from space defined by antisolal plane does not glare, and makes a pleasant impression. For the demonstration, it should be understood that the cause of this effect is a partial polarization of sunlight.

Note: It is recommended to do this experiment in a flat landscape at any time of the year in the mornings and afternoons. Less good time is early morning and late evenings. It can not be implemented at and cloudy day, and under diffusive sunlight.

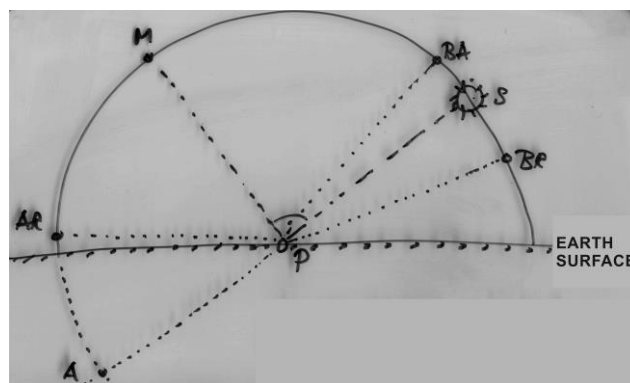


Fig. 1 Significant points on the celestial vault lying in one plane

### ***Question:***

Why there is a change of polarization?