

POLARIZATION OF WHITE-LIGHT SOLAR CORONA DURING TOTAL SOLAR ECLIPSES

YOANA NAKEVA¹, TSVETAN TSVETKOV², VLADIMIR
MERZLYAKOV³, LIDIA STARKOVA³, ROSITSA MITEVA², SERGEY
KUZIN⁴, ANDREI PERTSOV⁴, RUSLAN ZLATEV⁵, NIKOLA
PETROV²,

¹*King's College London, UK*

²*Institute of Astronomy and National Astronomical Observatory, Bulgarian
Academy of Sciences, Sofia, Bulgaria*

³*N. V. Pushkov Institute of Terrestrial Magnetism, Ionosphere, and Radio
Wave Propagation, Russian Academy of Sciences, Troitsk, Russia*

⁴*Lebedev Physical Institute of the Russian Academy of Sciences, Russia*

⁵*Independent researcher, Bulgaria*

E-mail: tstsvetkov@astro.bas.bg

We summarize the observations of the polarized white-light solar corona obtained during two total solar eclipses – 2006 March 29 and 2019 July 2. Our results are connected to the effect of polarized light of the sky to the polarized solar corona. The impact of sky polarization effect is defined by the position of the singular polarization point (where the intensity of the K-corona equals the sky polarization emission). Observations of 2006 total solar eclipse show that the singular polarization point is approaching the solar disk center as the Sun's altitude above the horizon decreases. Data from two observational teams situated at different locations (in Chile and in Argentina) during 2019 is also presented. Contrary to the previous results, the singular polarization point is closer to the center of the solar disk when the Sun is higher. These two opposite dependences suggest that the polarized sky emission reaches maximum value during the totality when the Sun is located between 10 and 40 degrees above the horizon.