Development of an EUV Telescope for Imaging the Polar Wind with the Emissions Resonantly Scattered by Oxygen Ions

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We are developing an EUV telescope capable of imaging EUV emissions resonantly scattered by oxygen ions to formulate the mechanism of the ion outward flow from the ionosphere. The telescope consists of a Al mirror coated by Ni and MgF2, an In filter and a hydrogen absorption cell, which suppress contamination due to the strong geocoronal Lyman alpha emission. Transmittance of the 280nm-thick In filter is measured to be 0.09 at the wavelength of 83.4nm, and it is also confirmed that the filter resists static pressure of about 600Pa which is larger than the hydrogen gas pressure required for enough absorption.