Spectroscopic observation of OI(630nm) emission from Enceladus torus

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It has been known that there exist H_2O molecules and their dissociative products from rings and icy moon around Saturn. Recently Cassini mission discovered a plume on Saturn's icy moon, Enceladus. This small moon supplies molecules and ice grains to the Saturn's magnetosphere. Distribution of these particles is such like as a torus making it called the Enceladus-torus. If we can observe distribution of particles around Saturn, we can get more clean understanding about Saturn's environment. A few observations of Enceladus torus have been made with Cassini/UVIS and HST, but there is no observation from the ground yet. So we planed a ground-based observation of the Enceladus torus. As the first step, intensity of OI emission in visible range (630nm) due to electron impact excitation was estimated based on model distribution of atomic oxygen and electron. Estimated emission intensity was ˜10Rayleighs, which is marginally observable from the ground. Observation of OI 630nm emission was made at Haleakala observatory using a high-dispersion Echelle spectrograph coupled to a 40-cm Schmidt Cassegrain telescope. At a presentation, detailed results of data analysis will be given.