

Performance test of Fabry-Perot Interferometer for Mercury's Sodium Atmosphere Spectral Imager

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It turned out by the ground-based observation in 1985(Potter and Morgan) that one of the main components of Mercury's exosphere is sodium, and various theoretical models have been advocated about source and loss processes of the Mercury sodium atmosphere. But, it is too difficult to observe the atmospheric distribution continuously by ground-based observations. On the other hand, Mercury orbiting satellite can do it.

We designed Mercury Sodium Atmosphere Spectral Imager with Fabry Perot Interferometer which has high wavelength resolution and put it to the test. The resolution of this FPI-based spectral imager is 5pm which corresponds to Mercury sodium D2 linewidth.

We made two etalons whose distances between the mirrors are 1.155 mm and 0.189 mm, using Zerodur as spacers, and checked its spectral performance and heat tolerance.