A tunable filter imager for future exploration of planetary atmospheres

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High sensitivity, high spectral resolution, and imaging capability are required for optical sensors onboard spacecraft which explores planetary atmospheres. We have been designing a tunable filter imager which operates in the visible region for future planetary missions. A liquid crystal tunable filter which has no mechanically moving parts and a wide tuning range is suitable for this purpose. A tunable filter imager would detect emissions from optical phenomena such as dayglow, aurora, cloud and dust in the planetary atmospheres, deriving atmospheric compositions, coefficients for background correction, vibration-rotation temperatures, etc.

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