Titan's Atmospheric composition as seen by Herschel/PACS and APEX

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Within the framework of the Herschel guaranteed time key project called ``Water and related chemistry in the Solar System"*[1], new insights into Titan's atmosphere are being facilitated by data from all three Herschel instruments (Heterodyne Instrument for the Far Infrared (HIFI), Photodetector Array Camera and Spectrometer (PACS), and Spectral and Photometric Imaging REceiver (SPIRE)). We present updated calculations of the synthetic spectra in the Herschel wavelength range[2], emphasize retrieved vertical profiles of temperature and H_2O, HCN, and CO mixing ratios with the spectral resolution of PACS, and if already available, compare there with data (at a wavelength range between 60 and 210 μm). We summarize our submillimeter ground-based observations and plans which complement and provide useful insights in the studies of the atmosphere of Titan.

*also known as ``Herschel Solar System Observations" (HssO) project

References

[1] Hartogh P., et al, *PSS.* Volume 57, Issue 13, 1596 (2009).
[2] Rengel M., Sagawa H. and Hartogh P. *AdGeo.* In press.