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VIRTIS for the ESA mission Venus Express

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The VIRTIS experiment is one of the instrument core payload for the ESA mission called Venus Express. VIRTIS consists of two channels: VIRTIS-M, an imaging spectrometer with moderate spectral resolution and VIRTIS-H, an high spectral resolution spectrometer having its field of view within the field of view of –M. The spectral range of VIRTIS-M is within 0.25um and 5um split in two focal planes with a boundary at 1um and a resolution of about 2nm and 10 nm respectively. The spectral range of VIRTIS-H is from 2 to 5um with a resolution of about 2nm.

The main scientific objectives of VIRTIS for Venus Express are: study of the lower atmosphere composition below the clouds and its variations (CO, OCS, SO2, H2O); study of the cloud structure, composition, and scattering properties; cloud tracking in the UV ($\sim$70 km, day side) and IR ($\sim$50 km, night side); measurements of the temperature field with subsequent determination of the zonal wind in the altitude range 60-100km (night side); lightning search (night side); mesospheric sounding; search for variations related to surface/atmosphere interaction, dynamics, meteorology, and volcanism; temperature mapping of the surface, search for hot spots related to volcanic activity; search for seismic waves from propagation of acoustic waves amplified in the mesosphere. Here we will discuss the main scientific objectives and expected performances of VIRTIS at Venus.