Spectroscopic studies applied to UVIS observations of Titan

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Titan's atmosphere is mainly made of N2 with several percents of CH4. Other minor species, numerous hydrocarbons and nitriles, are also present as products of a complex chemistry initiated by several energy sources (e.g. solar UV photons, Saturn's magnetosphere electrons). With the Cassini-Huygens mission, and in particular from UVIS observations for the high atmosphere, we have already learned a lot about Titan's chemical composition and atmospheric profiles. However, the interpretations still need new determination of some absorption cross sections. Then, with the aim to analyse UVIS observations, we have determined low temperature VUV high resolution spectra for organic compounds. These experiments have been carried out using VUV synchrotron facilities (BESSY II in Germany and SOLEIL in France). The most recent results concerning hydrocarbons like C4H2 and C6H2, and nitriles like HCN, HC3N, HC5N, C2N2, and C4N2 will be presented. Those experimental data are then used to analyse stellar occultation by Titan's atmosphere observed by UVIS in order to retrieve the abundance of those species or upper limits in case of non detection. Latest results in this field will also be shown.