HERSCHEL OBSERVATIONS OF EXTRAORDINARY SOURCES (HEXOS).

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The HEXOS guaranteed-time key program consists of high-resolution, high-sensitivity spectral line surveys of five sources within the Orion and Sagittarius B2 molecular clouds in the mostly unexplored frequency regime of the HIFI and PACS instruments on board the Herschel Space Observatory. Transitions with an unprecedented range of excitation energies are observed in these spectra, leading to robust constraints on the physical conditions of a large number of molecular species. This talk will present key results in the analysis of these surveys over the past year. We have completed a full-band analysis of the HIFI spectrum towards Orion KL, estimated to contain over 100,000 spectral features, revealing distinctions between molecules that probe hot ($\sim$ 300 K) gas and those that are detected in cooler ($\sim$ 100 K) environments. A total of 31 molecules and their isotopologues have been modeled in this spectrum. The analysis of the Sagittarius B2(N) HIFI spectrum, which has similar complexity to that of Orion KL and also contains spectral features coming from a range of physical environments, is currently underway and early results will be presented.