Prospects for interstellar and circumstellar galactic medium

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ELT instruments will combine high spectral and spatial resolution in a range full of key interstellar dust features and warm gas diagnostics. This will constrain like never before the dynamics, energetics and warm chemistry of galactic compact objects such as the inner region of planet-forming disks, the circumstellar environment of evolved stars, or the close environment of massive stars and cluster formation. A better understanding of the cycle of the interstellar matter and in particular of the content of small dust and hot main molecules carrying carbon and oxygen will be obtained. The VLTI already offers interesting opportunities for some scientific questions such as the evolution of solid carbon matter in circumstellar environments like proto-planetary disks. In this presentation, we will focus in particular on the spatially resolved spectroscopy in the thermal infrared accessible with the METIS instrument. JWST and ELT instruments will be fully complementary with extreme sensitivity for JWST versus high spectro-angular resolution for ELT. We will highlight some specific science cases.