Extragalactic astronomy with HIFI

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We discuss the potential of HIFI for extragalactic spectroscopy, both at low and high redshift, emphasizing frequency ranges that are not easily accessible from the ground. We will highlight three fields:

1) molecular spectroscopy of starburst and ultraluminous galaxies; the interstellar media of such objects are very different from the interstellar medium of the Milky Way. Multi-line spectrscopy will reveal the temperature and density structure of the star forming clouds. The crucial diagnostics probing dense and hot gas are of such high frequency as being inaccessible from the ground.
2) the diffuse medium in nearby galaxies, which can be probed by HIFI in the 158 micron [CII] line
3) the prospects for detecting high-z starburst galaxies with HIFI, principally in the 158 micron [CII] line.