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Characterization of Physical Parameters of the ROSETTA Target Comet 67P/Churyumov-Gerasimenko

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Comets are believed to be widely unmodified remnants from the formation of the solar system and, therefore, their study can give important insights into the conditions prevailing at the time of the planetary system formation. ESA's ROSETTA mission aims at the long-term exploration of cometary nucleus in order to increase our knowledge and understanding of comets and thus also of the early solar system. The target of the mission is the Jupiter family comet 67P/Churyumov-Gerasimenko, due to the late selection a so far only barely observed and incompletely characterized short-period comet. Here we present first results from new visible imaging and spectroscopy observations of 67P obtained at the ESO VLT observatory: the detection of the nucleus with approx. size and shape estimation, the rotational lightcurve (in parts), nucleus colours, as well as an upper limit for the dust production of the comet at 4.5 AU. We also detected and measured the trail of old dust particles around this comet.