

VLT spectroscopic analysis of HH 202. Implications on dust destruction and thermal inhomogeneities

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We present a long-slit spectroscopic analysis of Herbig-Haro 202 and the surrounding gas of the Orion Nebula using data from the Very Large Telescope³. We determined the spatial variation of its physical conditions and chemical abundances; our results are consistent with those from previous studies albeit with improved uncertainties in some determinations. Special attention is paid to the iron (Fe) and oxygen (O) abundances, which show a peak at the brightest part of HH 202, allowing us to estimate that 57% of the dust is destroyed; we also calculate the amount of depletion of oxygen in dust grains, which amounts to 0.126 ± 0.024 dex. Finally we show that O abundances determined from collisionally excited lines and recombination lines are irreconcilable at the center of the shock unless thermal inhomogeneities are considered.