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**Gas-Jet-, Cluster-Jet- and Droplet-Targets: Multi-purpose Tools for Nuclear Physics** PHILIPP BRAND, ALFONS KHOUKAZ, Institut für Kernphysik, Westfälische Wilhelms-Universität Münster, 48149 Münster, Germany — Many experiments in nuclear physics and astrophysics demand for windowless jet targets delivering well-defined target beams of highest purity from various gases. Depending on the concrete experimental design, these requirements can be fulfilled by different target types. One possibility is a pure gas-jet target, providing supersonic jet streams with target thicknesses of, e.g., $10^{18}\,\mathrm{atoms/cm^2}$ directly behind the nozzle. A further development of such gas targets are cluster-jet-targets. By using fine Laval-type nozzles in combination with cryogenic gases, the production of nm-sized clusters is possible, leading to well-defined cluster-jet beams with high thicknesses up to $10^{15}\,\mathrm{atoms/cm^2}$ in a distance of even more than 2 m behind the nozzle. Therefore, such targets are well suited for $4\pi$ experiments. Even larger thicknesses can be achieved with more macroscopic objects like $\mu$m-sized, liquid or frozen droplets generated with a droplet target. High demands on all of these target types by recent experiments led to a boost with respect to new technological developments, resulting in an enormous improvement in performance. The properties of these target types, some prominent examples, and recent achievements will be presented and discussed.

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