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Gas-jet targets for nuclear astrophysics

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Nuclear astrophysics experiments, including future studies of solar fusion reactions, will benefit from the development of next generation gas-target setups. In the present contribution, supersonic gas-jet targets for nuclear physics are reviewed. The advantages of a localized, dense and pure target are discussed in detail by taking the example of the Jet Experiments in Nuclear Structure and Astrophysics (JENSA) windowless gas-jet target. JENSA provides an unprecedentedly high number density of ~10^{19} atoms/cm^2 and enables the direct measurement of various hydrogen and helium-induced astrophysical reactions. Finally, perspectives of future gas targets are presented.

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