

# ROCKSTAR: Towards a Roadmap of the Crucial measurements of Key observables in Strangeness reactions for neutron sTARs equation of state

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## The kaonic helium measurement with SIDDHARTA-2 at DAFNE accelerator

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The L-series X-rays transitions of the kaonic helium-4 exotic atom were measured by SIDDHARTINO, the reduced configuration of the SIDDHARTA-2 experiment, at the DAΦNE collider of INFN-LNF, with gaseous  $^4\text{He}$  targets at densities of 1.90 g/l and 0.82 g/l, corresponding to 1.5% and 0.66%, respectively, of the liquid helium-4 density. The two new kaonic helium-4 yields will trigger a renaissance of the cascade calculations for exotic atoms, in particular for the kaonic atoms and a better understanding of the underlying processes and physics. The measurement of the kaonic helium transitions to the 2p level, represents the most precise one for a gaseous target and is expected to contribute to a better understanding of the kaon–nuclei interaction at low energy.

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