

X-rays of light kaonic atoms: SIDDHARTA and future

Wednesday, 20 May 2015 12:30 (30 minutes)

The X-ray measurements of kaonic atoms are important for understanding the low-energy QCD in the strangeness sector. The SIDDHARTA experiment studied the X-ray transitions of 4 light kaonic atoms (H, D, ^3He and ^4He) using the DAFNE electron-positron collider at LNF (Italy). The currently most precise values of the shift and width of the kaonic hydrogen 1s state were determined, which are now being used as fundamental information for the low-energy K -p interaction in theoretical studies. The yields of kaonic hydrogen K-series transitions and of the kaonic ^3He and ^4He L-series were measured, the upper limit of the X-ray yields of kaonic deuterium was determined, important for future K-d experiments. The shifts and widths of the kaonic ^3He and ^4He 2p states were analyzed, settling open points in this issue. In the contribution, the experimental approach and the results of SIDDHARTA will be presented, along with plans for new experiments on kaonic deuterium.

Primary author: CARGNELLI, Michael (Austrian Academy of Sciences - Stefan Meyer Institute)

Co-author: COLLABORATION, SIDDHARTA (.)

Presenter: CARGNELLI, Michael (Austrian Academy of Sciences - Stefan Meyer Institute)