

# Scalar $K\bar{K}$ production close to threshold at ANKE

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Fundamental properties of the scalar resonances  $a_0/f_0(980)$ , like their masses, widths and couplings to  $K\bar{K}$ , are poorly known. In particular, precise knowledge of the latter quantity would be of great importance since it can be related to the  $K\bar{K}$  content of these resonances.

The main goal of the experimental program, which is under way at COSY-Jülich (ANKE and WASA spectrometers), is the extraction of the isospin-violating  $a_0/f_0$  mixing amplitude.

As a first step, the production of  $(K\bar{K})_{I=1}$  pairs has been investigated at ANKE in the reaction  $pp \rightarrow dK^+\bar{K}^0$  at excitation energies  $Q$  of 46 [1] and 105 MeV. Partial wave analyses of the invariant mass and angular spectra show, the dominance of the  $a_0$ -channel ( $[d(K\bar{K})_s]_P$  configuration).

In the non-isospin selective  $pn \rightarrow dK^+K^-$  reaction the scalar  $K\bar{K}$  production is strongly suppressed with respect to vector  $\phi$  mesons.

As the next step, a measurement of the isoscalar  $K\bar{K}$  production in the isospin selective reaction  $dd \rightarrow \alpha K^+K^-$  will be performed in April 2006 and the results of a first analysis will be presented.

[1] V. Kleber et al., Phys. Rev. Lett. 91, 172304 (2003)

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