Strangeness Production at COSY

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The COSY (Cooler Synchrotron) accelerator at the Research Center Jülich provides high intensity, polarized, cooled beams of protons and deuterons to study non-perturbative QCD up to the strange sector using data taken by several experiments. This includes the production and decay of particles with strangeness as well as their interaction with other particles or surrounding medium. An overview of COSY and the physics program will be given.

The main focus of the talk will be on the associated strangeness production in the $pp \to NYK$ reaction close to the production threshold. This reaction has been measured by different experiments at COSY. The most recent results have been obtained by the COSY-TOF experiment in the $\vec{p}p \to p\Lambda K$ reaction utilizing a polarized proton beam from COSY. These results include the determination of the spin resolved $p\Lambda$-scattering length as well as polarization observables such as the analyzing power of the final state particles.