

The search for symmetry violating η decays

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Collaboration

Abstract content

A continued interest in forbidden decay modes of light mesons comes from the idea that there are mechanisms which would allow a violation of the standard law of physics at a very small level. The experimental challenge for such kind of physics is mostly in the accumulated experimental statistics needed for those mesons to reach the necessary sensitivity in searching for such violations. The A2 Collaboration at the Mainz Microtron, MAMI, has collected 6.2×10^7 η mesons, produced via the $\gamma p \rightarrow \eta p$ reaction. This large statistics data set allows further improvement of the existing upper limits for branching ratio (BR) of several forbidden decays of the η meson into neutral final states. New results for the CP violating decay mode, $\eta \rightarrow 4\pi^0$ and, for the C violating decay modes, $\eta \rightarrow 3\gamma$ and $\eta \rightarrow \pi^0\gamma$ will be presented.

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