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Search for Invisible Dark Photon Decays at BaBar & New CP Violation Results from Combined BaBar+Belle Measurements

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The BaBar experiment pioneered the low-energy, high-intensity collider search in various signatures of light dark matter and put stringent constraints on dark sector models. We present a new measurement, which focuses on the search for invisible decays of the dark photon.

We present results of a new analysis campaign, which combines the final data samples collected by the B factory experiments BaBar and Belle in single physics analyses to achieve a unique sensitivity in time-dependent CP violation measurements. We present a measurement of $\sin(2\beta)$ and $\cos(2\beta)$ by a time-dependent Dalitz plot analysis of $B^0 \rightarrow D^{(*)}h^0$ with $D \rightarrow K_S^0\pi^+\pi^-$ decays. A first evidence for $\cos(2\beta) > 0$, the exclusion of trigonometric multifold solutions of the Unitarity Triangle and an observation of CP violation are reported.

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Classification de Session: Heavy Flavours (cont)

Classification de thématique: Experiment