

Search for a light CP-odd Higgs boson in BaBar

Thursday 16 July 2009 15:45 (15 minutes)

We search for evidence of a light scalar (e.g. a Higgs boson) in the radiative decays of the narrow Upsilon(2S) and Upsilon(3S) resonances:

$\text{Upsilon}(2S,3S) \rightarrow \gamma A^0, A^0 \rightarrow \mu^+ \mu^-$ and

$\text{Upsilon}(3S) \rightarrow \gamma A^0, A^0 \rightarrow \tau^+ \tau^-$.

Such an object appears in extensions of the Standard Model, where a light CP-odd Higgs boson naturally couples strongly to b-quarks.

We find no evidence for such processes, and set upper limits on the effective coupling of the b quark to A^0 . We also set an upper limit on the di-muon and di-tau branching fractions of the η_b meson.

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Session Classification: III. Higgs and New Physics

Track Classification: Higgs and New Physics