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A Measurement of the Direct CP Asymmetry in the Decay $b \to s\gamma$ MINLIANG ZHAO, Massachusetts Institute of Technology, BABAR COLLABORATION — We present a measurement of the direct CP asymmetry in the rare Standard Model decay $b \to s\gamma$ using 380 million $B\bar{B}$ events collected by the BaBar experiment at the PEP-II B-factory. In the Standard Model, direct CP violation in this process is expected to be $< 1\%$, while in new physics models (such as the Minimal Supersymmetric Standard Model) it can be as high as 15%. We select this rare decay by fully reconstructing the B meson decay into a fragmented s-quark and a photon using many exclusive final states of the B decay.

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