Search for $B_s^0 \to \eta\eta$ KAMAL NATH, BIPUL BHUYAN, Indian Inst of Tech-Guwahati, BELLE COLLABORATION — We search for the decay $B_s^0 \to \eta\eta$ using 121.4 fb^{-1} of data collected at $\Upsilon(5S)$ resonance by the Belle detector at the KEKB asymmetric energy e^+e^- collider located at the High Energy Accelerator Research Organization, Japan. In the Standard Model (SM), this decay is a neutral charmless decay which can occur through a variety of processes such as Cabibbo suppressed b $\to$ u transition with a further color suppression with respect to the charged modes. Contributions can also arise from electroweak penguins. Theoretical calculation based on pQCD predicts the branching ratio (BR) for $B_s^0 \to \eta\eta$ to be $(14.2 + 18.0 - 7.5) \times 10^{-6}$, which has a large uncertainty. The present experimental upper limit on the BR for $B_s^0 \to \eta\eta$ is 1.5×10^{-3} at 90% confidence level (CL). This analysis will be the first attempt to search for this decay using the available dataset from the Belle experiment with an expectation of reaching the SM sensitivity.

Bipul Bhuyan
Indian Inst of Tech-Guwahati