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Search for Standard Model Higgs Particle in Two Photon Final State at LHC JAEHOON YU, HYEONJIN KIM, University of Texas at Arlington, ATLAS COLLABORATION[1] — The Higgs particle is a manifestation of the Higgs mechanism that gives masses to leptons and quarks and is the last missing piece in the Standard Model. The Higgs particle has been sought over the past three decades but has not been found. The precision measurements of masses of W vector bosons and the top quark have been providing valuable information in searching for the Higgs particle. The ATLAS experiment at the Large Hadron Collider facility is going to be turned on this year and will dramatically extend the kinematic range of the search for the Higgs particle. One of the cleanest channels for the search for the Standard Model Higgs is using its two photon or four electron final states. In preparation for the imminent turn on of the LHC and the experiment, we have been working on developing electron and photon identification algorithms using the covariant matrix technique. In this presentation, we present the results of the Higgs search strategy in its two photon final state using this technique at ATLAS experiment and its performance test using simulated data.

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