Abstract Submitted
for the APR21 Meeting of
The American Physical Society

JLab Eta Factory experiment in Hall D[1] ALEXANDER SOMOV, Jefferson Lab, GLUEX COLLABORATION — The new experiment, JLab Eta Factory (JEF), in the experimental Hall-D at Jefferson Lab will extend the physics potential of the GlueX beyond the main spectroscopy program and study rare decays of eta mesons. Among various physics topics, the experiment will focus on decays of eta mesons to the $\eta \to \pi^0\gamma\gamma$ final state. This decay mode provides an important information for higher-order calculations in chiral perturbation theory. The final state is ideal for the search of the leptophobic dark B boson in the reactions $\eta \to B\gamma$, $B \to \pi^0\gamma$ and the scaler dark matter mediator S in the channel $\eta \to \pi^0 S$, $S \to \gamma\gamma$. The experiment requires to upgrade the inner part of the forward lead glass calorimeter of the GlueX detector with high-granularity, high-resolution lead tungstate $PbWO_4$ scintillating crystals. The detector will be ready to take data in 2023. I will give an overview of the JEF project.

[1]This work was supported bythe US Department of Energy, Office of Science, Office of Nuclear Physics under contract DE-AC05-06OR23177.

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Date submitted: 07 Jan 2021 Electronic form version 1.4