The JLab Eta Factory (JEF) experiment

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The new experiment, JLab Eta Factory (JEF), in the experimental Hall D at Jefferson Lab will extend the physics potential of the GlueX detector beyond the main spectroscopy program and perform precision measurements of various $\eta^{(\prime)}$ decays with emphasis on rare neutral modes. The physics program of the experiment spans from precision tests of low-energy QCD to search of gauge bosons in the mass range below 1 GeV coupling the SM sector to the dark sector. Photoproduction of higly boosted $\eta^{(\prime)}$ mesons using a tagged photon beam, good detection of recoil proton and multi-photon final states will allow to suppress background and collect high-statistics data sample of η mesons. All these provide many advantages of the JEF project over other $\eta^{(\prime)}$ experiments. The JEF experiment requires to upgrade the inner part of the forward lead glass calorimeter of the GlueX detector with high-granularity, high-resolution lead tungstate PbWO4 scintillating crystals. The calorimeter insert is currently under construction at Jeffeson Lab. The detector will be ready to take data in 2024. I will give an overview of the JEF project.