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Target Simulation for PRad Experiment YANG ZHANG, Duke University, PRAD COLLABORATION — The recently approved PRad experiment at Jefferson Laboratory Hall B aims to extract the proton charge radius at the sub-percent level using unpolarized electron-proton elastic scattering cross section in very low Q^2 region. This experiment will provide an important opportunity to address the "proton radius puzzle." A novel feature of this experiment is the utilization of a windowless gas flow target, which greatly reduces the background contribution from the target cell. A differential pumping system has been designed in order to obtain high target density while at the same time maintain low vacuum pressure along the beamline. This talk will present the results of a calculation of the target density with the designed target and pumping system using finite element analysis software package COMSOL. This work is supported by the U.S. Department of Energy under contract number DE-FG02-03ER41231 and the National Science Foundation under award number PHY-1229153.

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