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Precision, radiation hard ZDCs, for high luminosity LHC running

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The Joint Zero Degree Calorimeter Project, JZCap, seeks to deploy new high resolution ZDCs for ATLAS, CMS and possibly other experiments for Run 3 of the LHC. These ZDCs will be radiation hard enough to measure forward neutrons and bremsstrahlung photons during PbPb, pPb and dedicated pp running. The ZDCs are tungsten Cerenkov calorimeters where the active medium consists of fused silica developed for luminosity measurements at the LHC. Segmentation of the ZDCs in depth provides excellent separation of photons and neutrons. The angular distribution of the spectator neutrons will be measured arrays of square silica cells. This talk will present data on radiation hardness, activation and the test beam performance of the detectors as well as detailed simulations. Finally the projected physics performance of the detectors will be discussed and potential for similar detectors in the EIC will be discussed.

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