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sPHENIX MVTX Test Beam Data Analysis SITONG PENG, Sun Yat-sen University, SPHENIX COLLABORATION — sPHENIX is a next generation high speed multipurpose detector focused on jet, Upsilon and open heavy favor programs. MVTX is a fast MAPS-based vertex detector designed for precise primary and secondary vertex measurements. Our group focuses on the MVTX detector simulation and track reconstruction using the sPHENIX software. We have been tuning the MVTX MC cluster size distributions using the 2019 Test Beam Data with 120GeV proton beam. A threshold of deposited energy on pixels needs to be applied to match the simulated cluster distributions to the Test Beam Data. Charge diffusion will also affect the energy deposit, ranging from effective minimal R to maximal R. We divide a tracks total pathlength in sensor into N segments, then calculate the overlapping area of circle in pixels to distribute energy deposition in the corresponding segment, and sum up all segments to get the total energy deposit in each pixel. We have matched the cluster size distributions in simulation to the ones from TB data, and also compared the simulation results with the TB data taken with several different incident angles, up to 40-degree.

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