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Winner-Leader-Follower - a novel charge summing and hit allocation algorithm

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X-ray color imaging is a promising method that provides extra information due to photon energy binning. Due to the high demand for high spatial resolution, the detectors tend to decrease the pixel pitch size. The decreasing pixel pitch size directly affects the spectral resolution due to the charge-sharing effect and fluorescent photons that travel elsewhere in the sensor material. Therefore, on-chip charge sharing and hit allocation algorithms are being developed to compensate for these effects. This work introduces a novel charge-sharing and hit allocation algorithm together with testing ASIC ColorPix-2, which was designed to test the algorithm.

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