**Detector Response: Photon Noise Impact on Centroiding** CMV4000 Sensor Model with Realistic Noise Magnitude 4 Magnitude 3 Magnitude 6 Clean (10000 photons) Clean (3000 photons) Clean (300 photons) - 175 50 - 5 - 150 40 - 125 - 3 - 100 30 - 75 - 2 20 - 50 - 1 - 10 - 25 With Poisson + Read Noise With Poisson + Read Noise With Poisson + Read Noise  $(\sigma \text{ read} = 13e^-)$  $(\sigma \text{ read} = 13e^-)$  $(\sigma \text{ read} = 13e^-)$ 200 80 - 40 - 175 70 - 150 60 - 30 - 125 50 - 100 40 - 20 - 75 30 - 50 20 - 10 Error: 0.91 px Error: 2.32 px - 25 Error: 1.66 px - 10