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## X-ray spectroscopic performance of a matrix of silicon drift diodes

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Using  $^{55}\text{Fe}$  and  $^{241}\text{Am}$  sources we characterized the spectroscopic performance of a matrix of Silicon Drift Diodes (SDD). The matrix consists of a completely depleted volume of silicon wafer subdivided into 5 identical hexagonal cells. The back side is 5 implanted arrays of increasingly negatively biased concentric p<sup>+</sup> rings. The front side, common to all 5 cells, is a shallow and uniformly implanted p<sup>+</sup> entrance window. Ionizing radiation impinging the detector bulk generates electrons that drift towards small readout n<sup>+</sup> pads placed on the back side in the center of each cell. The total sensitive area of the matrix is 135 mm<sup>2</sup>, the wafer thickness is 450  $\mu\text{m}$ . We report on the layout of the experimental set-up, as well as the spectroscopic performance measured at different temperatures and bias conditions.

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