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Time resolution of an irradiated 3D silicon pixel detector

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We report on the measurements of time resolution for double-sided 3D pixel sensors with a single cell of $50 \mu\text{m} \times 50 \mu\text{m}$ and thickness of $285 \mu\text{m}$, fabricated at IMB-CNM and irradiated with reactor neutrons from $8 \times 10^{14} \text{ MeV n}_{eq}/\text{cm}^2$ to $1.0 \times 10^{16} \text{ MeV n}_{eq}/\text{cm}^2$.

Measurements were conducted using a radioactive source at a temperature of -20 and $20 \text{ }^\circ\text{C}$ in a bias voltage range of 50 - 250 V . The reference time was provided by an LGAD detector produced by Hamamatsu. The results obtained are compared to measurements conducted prior to irradiation.

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