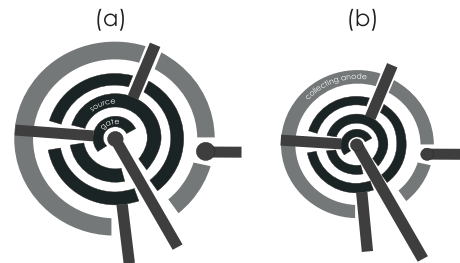


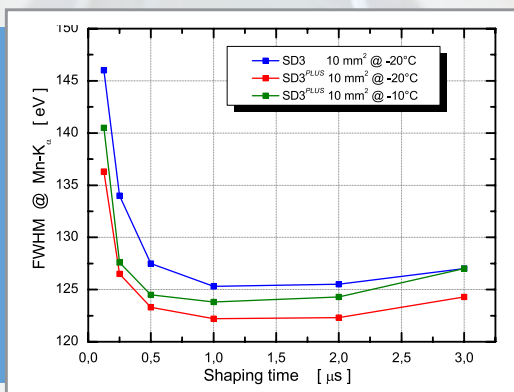
SDD^{plus} with Improved Energy Resolution at Short Shaping Times

A new generation of SDDs has been developed to optimize the energy resolution at short shaping time and hence the detector performance at high input count rates. Serial white noise affects the energy resolution at small shaping times. It is proportional to the total input signal capacitance which depends on the geometry of the anode and of the integrated transistor (FET).

The new generation of SDDs exhibit **FET with more compact geometry**. This is minimized in such a way that the input capacitance is **50 % smaller** than for current types.



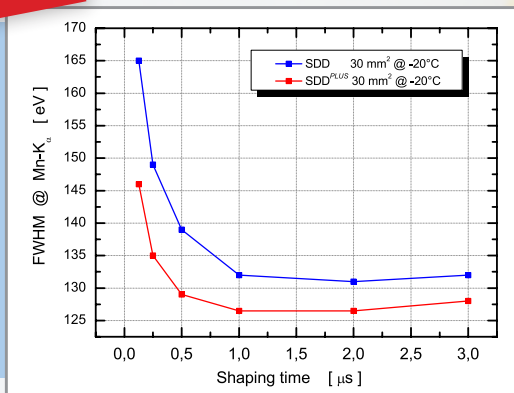
Top view of the integrated transistor FET on the SDD.
(a) the standard FET of the current SDDs
(b) small FET of the new SDD



Droplet type SD3^{plus} -10

- ▶ Energy resolution **down to 122 eV**
@ -20 °C, MnK, **1 μs** shaping-time
- ▶ Energy resolution **down to 126 eV**
@ -20 °C, MnK, **0.25 μs** shaping-time

new



**SDD^{plus}
now for large SDDs**

Round type SDD^{plus} -30

- ▶ Energy resolution **down to 127 eV**
@ -20 °C, MnK, **2 μs** shaping-time
- ▶ Energy resolution **down to 134 eV**
@ -20 °C, MnK, **0.25 μs** shaping-time