

Chapter 1

Signal formation in diamond

Ramo theorem

Current measurement

current preamp

Charge measurement

charge preamp

Theory: Examples - average pulses - persistence - gamma, beta, alpha
measured, produced pulses

Electronics used

FE-I4 chip - integrated ASIC

functional description, characteristics,

Current, charge preamp

1.1 Principles of signal formation

Lattice, electron-hole pair production (3 pg) Ramo theorem (2 pg)

1.2 Radiation-induced electrical pulses

1.2.1 Current profiles

Alpha beta gamma neutron

1.3 Electronics for signal processing

1.3.1 Signal pre-amplifiers

(2 pg)

Current pre-amplifier

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Charge pre-amplifier

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1.3.2 Signal processing

(2 pg)

ASIC pixel chips

FE-I4 functional description, characteristics (2 pg)

FPGA

(0.5 pg)

1.3.3 Full detector readout chain

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