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## **New method for determining avalanche breakdown voltage of silicon photomultipliers**

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### **Content**

The avalanche breakdown and Geiger mode of the silicon p-n junction is considered. A precise method is proposed for determining the avalanche breakdown voltage of silicon photomultipliers (Si PM). The method is based on measuring the dependence of the photon detection efficiency on the bias voltage when one type of carriers (electron or hole) is injected into the depleted region of the p-n junction. The injection of electrons or holes from the base region of the Si PM semiconductor structure is performed using short-wave or long-wave light. At low overvoltage detection efficiency is linearly dependent on the overvoltage, and extrapolation to zero values determines the Si PM avalanche breakdown voltage.

### **Summary**

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