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The second production of RSD at FBK

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In this contribution we describe the second run of RSD (Resistive AC-Coupled Silicon Detectrors) designed by INFN Torino and produced by FBK, Trento.
RSD are n-in-p detectors intended for 4D particle tracking based on the LGAD technology that get rid of any segmentation implant in order to achieve the 100% fill-factor. They are characterized by three key-elements, (*i*) a continuous gain implant, (*ii*) a resistive n-cathode and (*iii*) a dielectric coupling layer deposited on top, guaranteeing a good spatial reconstruction of the hit position while benefiting from the good timing properties of LGADs.
We will start from the very promising results of our RSD1 batch in terms of 4D-tracking and then we will move to the description of the design of the RSD2 run.
In particular, the principles driving the sensor design and the particular AC-electrode layout adopted to optimize the signal confinement will be addressed, also focusing our attention on other important detector figures-of-merit, such the role of substrate thickness, metal thickness and on the radiation-resistance properties.

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