



**ORGANISATION EUROPEENNE POUR LA RECHERCHE NUCLEAIRE
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH**

Laboratoire Européen pour la Physique des Particules
European Laboratory for Particle Physics

GENEVE, SUISSE
GENEVA, SWITZERLAND

Michael Moll, CERN, EP-Department EP-DT, CH-1211 Geneva 23

Dr. Michael Moll
CERN EP-Department (EP-DT)
CH 1211 Geneva 23
Switzerland

Phone: + 41 22 76 72495
E-mail : michael.moll@cern.ch

CERN, Geneva, 7.7.2017

Letter of support for the project:

RESISTIVE AC-COUPLED SILICON DETECTORS (RSD)

To whom it may concern,

My name is Michael Moll, I am in charge of the CERN EP solid state detector laboratory (SSD) and I am a co-spokesperson of the RD50 collaboration.

I know Marco Mandurrino as an active member of the RD50 collaboration; in the last RD50 Workshop in Krakow (5-7 June) he presented a detailed study on how to simulate LGAD sensors (Low Gain Avalanche Detectors) using the Sentaurus TCAD package.

Marco's proposed research plan "Resistive AC-coupled Silicon Detectors (RSD)" is pushing forward a new innovative LGAD design. It decouples the signal multiplication from the segmentation of the device by embedding a resistive layer on top of the gain layer and using segmented capacitively coupled electrodes. This approach is addressing a problem of the present state-of-the-art LGAD designs which suffer from a dead area between pads of about 50 to 100 microns. I am convinced that the improvement of the device performance, i.e. the significantly increased fill factor, and the flexibility gained in having a homogeneous gain layer throughout the full sensor, will make this approach a success.

Not only performance should be increased but also cost and complexity reduced for design and construction of timing detector experiments, as present LGAD designs would require multiple layers to obtain hermetic coverage while the new approach promises to use a single layer.

I am looking forward to the results of this project and express my full support for the project and the proponent.

Best regards,

A handwritten signature in blue ink, appearing to read "Michael Moll".

Dr. Michael Moll

(CERN EP-DT – Deputy Group Leader of the Detector Technologies Group
& Co-spokesperson of the RD50 collaboration)