

NanoUV: a novel UV-light detector based on aligned Carbon nanotubes

Tuesday, 26 May 2020 11:18 (18 minutes)

We present the latest results on NanoUV, a novel UV light detector concept based on aligned carbon nanotubes. The efficiency of today's UV light detectors is limited by the quantum efficiency of photocathodes, which for photons in the UV range rarely exceeds 20-30% in commercial models. This is because photoelectrons produced by UV photons have low energy, and are therefore easily re-absorbed in the photocathode before they can be extracted. NanoUV aims to revolutionize UV light detectors by making photocathodes of aligned carbon nanotubes: in this way the ejected photoelectrons can travel inside the hollow tube axis without being re-absorbed. We will report the results of the first NanoUV prototype, on its extensive characterization with UV photons and low energy electrons from the electron gun facility of University of Roma Tre, and on the construction of a carbon nanotube growing facility in the University of Rome Sapienza.

Funding information

This project has received funding from the ATTRACT project funded by the EC under Grant Agreement 777222

Primary authors: PANDOLFI, Francesco (INFN Rome); Prof. CAVOTO, Gianluca (Sapienza Università e INFN, Roma I (IT)); RAGO, Ilaria Carmela (INFN Rome); Prof. RUOCCO, Alessandro (Università di Roma Tre); Prof. MARIANI, Carlo (University of Rome Sapienza)

Presenter: PANDOLFI, Francesco (INFN Rome)

Session Classification: Sensors: Photo-detectors

Track Classification: Sensors: Photo-detectors