

Mo/Au TESs for Quantum Technologies

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Abstract

We will present the development of Transition Edge Sensors (TESs) based on Mo/Au superconducting bilayers in Spain[1], optimized for different applications depending on the absorber design. These applications range from astrophysics and particle physics experiments (X-ray astronomy[2-3], Dark Matter direct detection) or material sciences, to photon counting in Quantum Technologies[4].

References

- [1] L. Fàbrega, A. Camón, P.Strichovanec, C. Pobes, IEEE Trans. Appl.Supercond., 29(5) (2019) pp1-5. 2100405
- [2] L.Ravera et al., Proceed. SPIE9144 (2014).
- [3] C.Pobes et al., IEEE Trans. Appl.Supercond. 27(4) (2017) pp1-5. 2101505.
- [4] Rodrigo, S. G., Pobes, C., Sánchez Casi, M., Martín-Moreno, L., & Camón Lasheras, A. Opt Express, 30(8) (2022) 12368-12377

Figures

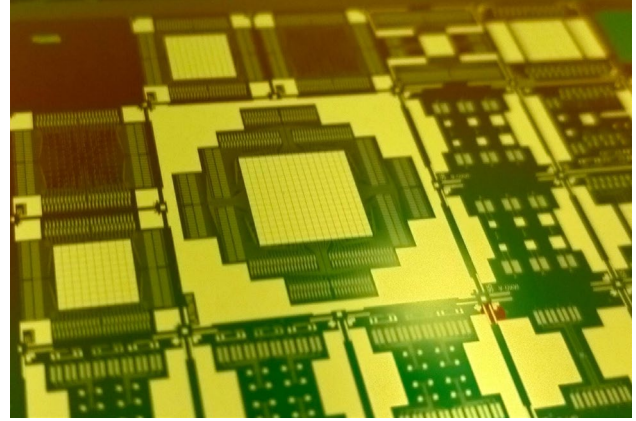


Figure 1: Partial picture of a wafer with Mo/Au TESs arrays and pixels of different designs. A 16x16 array with Au/Bi absorbers is highlighted at the center of the image.

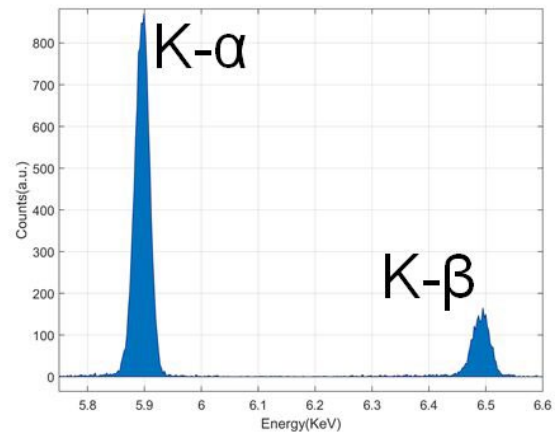


Figure 2: Preliminary $K\alpha$ and $K\beta$ peaks from a Fe55 source in a 250 μm wide pixel.