



Contribution ID: 21

Type: Poster

# On the applications of functional quantum abstract detecting systems

Quantum abstract detecting systems (QADS) provide a common framework to address detection problems in quantum computers [1]. A particular QADS family, that of combinatorial QADS [2], has been proved to be useful for decision problems on eigenvalues or phase estimation methods. In this work, we consider functional QADS, which not only have interesting theoretical properties (intrinsic detection ability, relation to the QFT...), but also yield improved decision and phase estimation methods, as compared to combinatorial QADS.

[1] Combarro, Elías F., José Ranilla, and Ignacio F. Rúa. "Quantum abstract detecting systems." *Quantum Information Processing* 19 (2020): 1-25.

[2] Hernández Cáceres, J. M., Elías F. Combarro, and Ignacio F. Rúa. "Combinatorial and rotational quantum abstract detecting systems." *Quantum Information Processing* 21.2 (2022): 66.

**Authors:** Mr LUGILDE FERNÁNDEZ, Guillermo (University of Oviedo); Prof. RÚA, Ignacio (University of Oviedo); Dr COMBARRO, Elías (University of Oviedo)

**Presenter:** Dr COMBARRO, Elías (University of Oviedo)

**Session Classification:** Poster Session 1