**Institute of Computer Science AGH and IBM Software Laboratory in Krakow invite to**



**Krakow Quantum Informatics Seminar (KQIS)  
(KQIS is an official seminar of the Quantum Computing Section of the Computer Science Committee of the Polish Academy of Sciences)**<https://www.informatyka.agh.edu.pl/en/kqi-seminars/> **Tuesday, 9 May 2023, 9.30-11.00 via Webex**<https://ibm.webex.com/meet/tomasz.stopa>

**Roberto Salazar**

**Faculty of Physics, Astronomy and Applied Computer Science,**

**Jagiellonian University, Kraków, PL**

**Dephasing noise in quantum gates**

**Abstract** This presentation will introduce the latest general model for dephasing noise in quantum channels. We will delve into the comparisons and contrasts between this type of noise and quantum states’ dephasing. Additionally, we will illustrate its significance in quantum resource theories and how it affects the operational definitions of channel coherence. Finally, we will explore open questions and potential applications of this model. This talk is based on the results of our work [1].

**References**

[1] Dephasing Superchannels, Physics Review A 104, 052611 (2021)

**Bio** Roberto Salazar obtained his PhD from the University of Concepcion, Chile, the main subject of his thesis being tomography and discrimination of quantum states under the supervision of Prof. Aldo Delgado. Afterwards, he moved to Poland for a Postdoctoral research position at the University of Gdansk. He worked and continues working with Prof. Paweł Horodecki and Prof. Karol Horodecki on diverse topics of quantum information, such as quantum nonlocality, quantum cryptography, quantum randomness amplification and the emergence of objectivity. Later, in 2020 moved to Krakow to join the group of quantum resources led by Dr Kamil Korzekwa at Jagiellonian University. He works closely with Prof. Karol Życzkowski, and his current research focuses on quantum resources for communication and quantum channels.