

QUantum reservoir cOMputing based on eNginneered DEfect Networks in trAnSition meTAl
dichalcogEnides (QUONDENSATE Type)

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Today's computation, based on parallel processing of information, is reaching its physical limitations and novel solutions are to be found in the close future to overcome such major hurdle. This project aims to achieve the first proof-of-concept of Quantum Reservoir Computing (QRC) scheme based on networks of Quantum Materials (QMs) defects which will enable the fabrication of prototypical computing devices. The engineering of defect network characteristics such as density and defect typology will allow tailoring the defects' network physical properties, and ultimately its euomorphic and computing complexity. The project is feasible yet groundbreaking because it capitalizes upon the very different expertises, both experimental and theoretical, comprised within the partners' consortium, all of which are required to implement a novel QRC scheme. As such, this project will result in unprecedented characteristics that extend the conventional boundaries of ICT electronic devices and systems and pave the way for the development of novel Quantum Technologies.