

<NE|AS|QC>

NEASQC in 3 slides

Short standard presentation of project



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 951821

NEASQC factsheet

- > **N**Ext **A**pplication**S** of **Q**uantum **C**omputing
- > A 4-year project starting 1st September 2020
- > A multidisciplinary consortium of 12 companies and research labs
- > Funded by Horizon 2020 programme
 - under the complementary call of the Quantum Technology Flagship
 - 4.67 M€

Boosting practical applications of quantum computing in the NISQ era



Centro de Supercomputación de Galicia



Irish Centre for High-end Computing



NEASQC's 4 Objectives

Develop industrial Use Cases for NISQ machine

- Use case centric project – UC defined and endorsed by the industrial partners
- Academic partners committed to help applications emerge

Develop open source NISQ programming libraries for industrial UC

Every use case is committed to donate libraries within a copyleft license



Build a strong community dedicated to industrial NISQ applications

- Huge effort on dissemination – targeting the QT community and the user communities
- Knowledge sharing among partners
- Engage associated end users

Develop SW stacks and benchmarks for the QT Flagship HW platforms

- Cooperation agreement with the funded platforms
- Develop first application-focused benchmark suite
- Integration of a ready-to-use programming environment

9 NISQ-compatible use cases

All use cases are endorsed by an industrial partner and investigated by an integrated team of industrial and academic partners



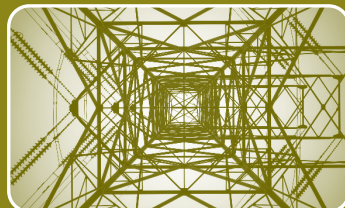
Chemistry

- CO₂ recapture
- Drug discovery



Machine Learning & Optimisation

- Machine learning for oil prospection
- Hard optimization problems for energy management
- Financial applications
- HPC mesh segmentation



Symbolic AI and graph algorithmics

- Quantum natural language processing (QNLP)
- Quantum probabilistic safety assessment (QPSA)
- Quantum rule-based systems (QRBS) for breast cancer detection

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Thank you for your attention!

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