

**Information on Search Strategy - Pilot phase (see OJ 2015, A86)**

The type of information contained in this sheet may change during the pilot for improving the usefulness of this new service.

Application Number

PCT/EP2019/080689

TITLE: NOISE AND CALIBRATION ADAPTIVE COMPILATION OF QUANTUM PROGRAMS

APPLICANT: INTERNATIONAL BUSINESS MACHINES CORPORATION

IPC CLASSIFICATION: G06N10/00

EXAMINER: Cilia, Elisa

CONSULTED DATABASES: EPODOC, NPL, WPI

CLASSIFICATION SYMBOLS DEFINING EXTENT OF THE SEARCH:

IPC:

CPC: G06N10/00

FI/F-TERMS:

KEYWORDS OR OTHER ELEMENTS FEATURING THE INVENTION:

A method for noise and calibration adaptive compilation of quantum programs. A quantum algorithm is compiled/transformed in a quantum circuit design comprising quantum gates. To perform a quantum gate qubits are chosen by calibrating them (i.e. comparing their operation with respect to an expected criterion of operation). The calibration produces parameters (e.g. measurement error, coherence time) that are compared to an acceptability threshold and allows to select or deselect them. The process of selecting / deselecting is repeated to possibly adapt the compiling process based on the results of a second calibration.