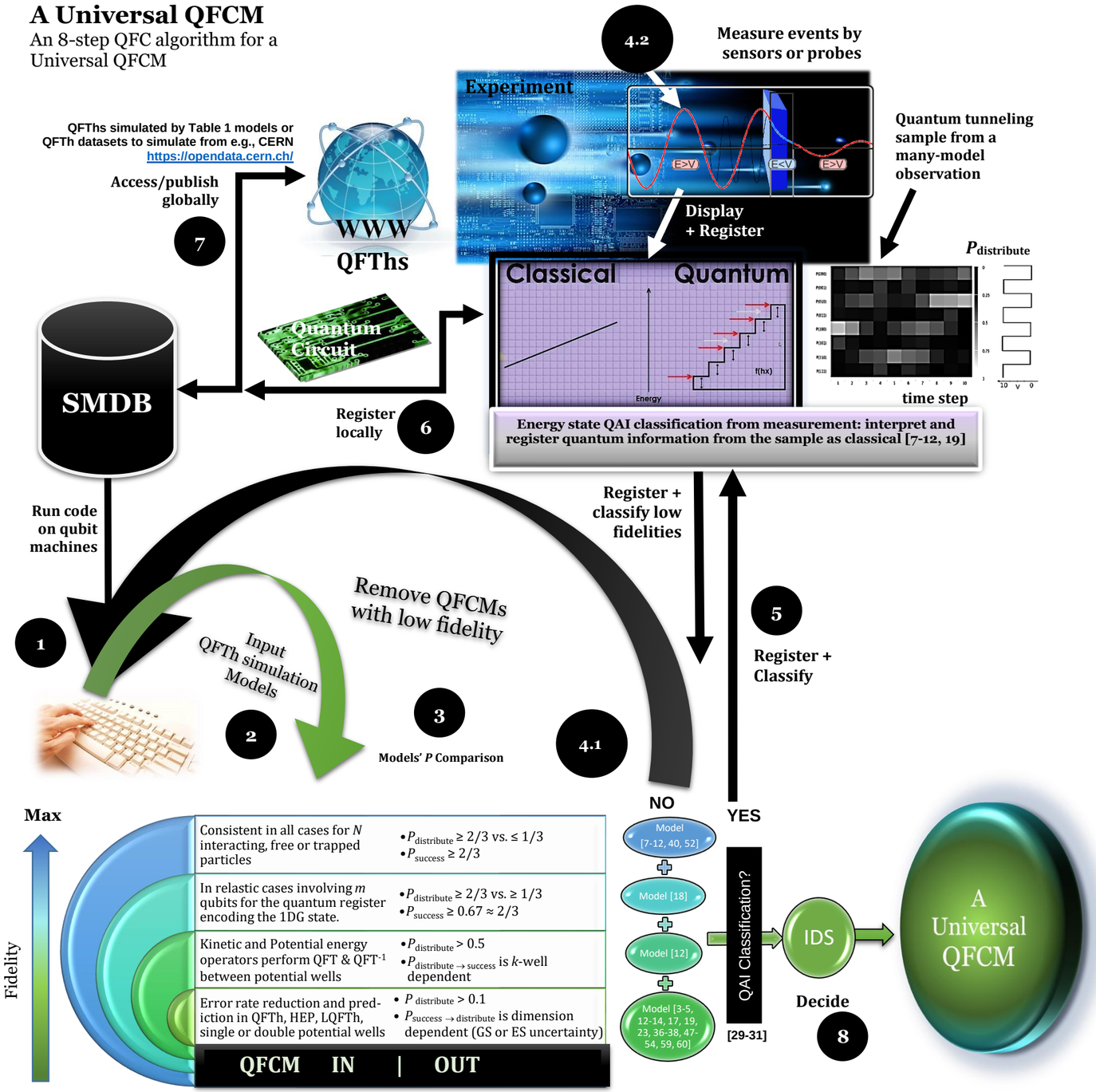
A Universal QFCM

An 8-step QFC algorithm for a Universal QFCM



Algorithm steps:

1. **Input** a QFTh model from any QFThs available and accessible on the internet or from an SMDB
2. Measure system events, display and register results: **GoTo** next step, **Else GoTo** step #1
3. Compare the *P*'s between models and classify which is with a high *P* and fidelity, from lowest to highest, given the model's measurement output and results background: Determines states of a quantum or classical scenario on any scale
4. Feed the QAI algorithm the probability and fidelity results on expected measurements relative to QFCMs for an IDS: **YES** or **NO** decision for or against achieving a universal QFCM? **If YES**, **GoTo** step #5, **Else GoTo** step #1
5. Register and classify results based on experimental measurements made between the classical and quantum results of the experiment (example here is sampling from quantum tunneling)
6. Simulate and measure to validate results or test in a simulation model from the theoretical to experimental on a quantum circuit using e.g., IBM-QE devices
7. Publish results as datasets, journals, SMDB to reiterate from step #1, after next step
8. Decide for a **YES** to present a universal QFCM, **Else** revisit steps #1 to #4.

Summary: A universal QFCM is expected from the algorithmic steps through a QAI classification of the compared QFCMs used to simulate QFThs which represent a physical system on the quantum level. Macro observations are made as classical information after this classification of energy states as quantum information (qubits). The registration and processing of this information identifies models with different degrees of fidelity in their quantum measurement results. At the algorithm's final step, the IDS decides whether the combined result of these models can be classed as a universal QFCM. The cycle of removing models with least fidelity affecting this goal restarts by adding newly-developed or improved QFCMs to reach this goal to propose a universal QFCM.

Acronyms

QFC = quantum field computation
SMDB = simulation model database
QFTh = quantum field theory
QAI = quantum artificial intelligence
QFCM = QFC model
IDS = intelligent decision simulator
QFT = quantum Fourier transform
QFT^{-1} = inverse of QFT
$P_{distribute}$ = probability distribution
$P_{success}$ = success probability
GS = ground state
ES = excited state

References are [x-xx] of QFCMs for this MethodsX review article by

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