

Q5: Are we confident that quantum spin microscopy will work?

A5: Newly feasible is end-to-end HWIL of (e.g.) the anti-HIV drug Nevirapine

DoD Modeling and Simulation (M&S)
Glossary



Assessing the Capabilities of Quantum Microscopy for Drug Development:

**Feasible, efficient, robust
quantum MOR is transformational.
QMOR enables quantum “virtualization”:
large-scale quantum system emulation
with hardware-in-the-loop (HWIL).**

spanning the period from the discovery of Nevirapine’s anti-HIV activity to the elucidation of the structural basis for this activity. An analysis of this literature indicates that quantum microscopy could significantly shorten the duration and improve the reliability of Nevirapine-type drug development. From a physics point of view, Nevirapine’s carbon-carbon nuclear dipole interactions are shown to be well-matched to testing and developing next-generation quantum simulation algorithms, being neither unrealistically simple nor intractably complex. It is noted that if the present rapid pace of advance in ab initio quantum chemical calculations continues, such that these calculations can be interfaced to the pipeline of structural information emerging from quantum microscopes, a new resource frontier will be opened biological science and medicine.

