I. Optical frequency standards in quantum metrology (optical lattice clocks and single trapped ions) II. Local oscillator (LO) stabilization scheme based on light-shift compensation and composite Ramsey pulses

III. Robustness of error signal laser frequency lock-points ignoring decoherence IV. 2D maps of clock frequency-shifts versus pulse area variation and offset detuning errors when decoherence is active

V. Universal protocols for robust laser frequency lock-point against dissipation

Our publications:
- Optical clock local-oscillator universal interrogation protocol for zero probe-field-induced frequency-shifts
- Absolute robustness of various error signal laser frequency locking points to individual or multiple discrete population blockades $\gamma_1, \gamma_2$ for a closed two-level system. The number of atomic state population measurements $N$ required to build the error signal is also indicated. A perfect phase stepping of the laser for all protocols is considered here. Note if $N = 0$, then $\gamma_2 = \gamma_1$ to be consistent with a pure cavitation process.

Method 1: state preparation Method 2: pulse order reversal