

High-rate navigation with atom interferometers

Atom Interferometers as inertial sensors were getting quite some interest in the last decade.

The superior sensitivity of the sensors is mostly reached by large interrogation times of the atoms. For high-rate navigation scenarios, however, the long measurement intervals and preparation times of the atoms lead to severe systematic errors in the navigation solution.

In this contribution a quite promising combination of the atom interferometer and a classical inertial measurement unit (IMU) in an error state extended Kalman Filter framework is presented. This approach aims especially on improving the performance of the conventional IMU, while the drawbacks of the quantum sensor are negated.