

## About the Library

**AstDyn (Asteroid Dynamics)** is a high-fidelity C++ library designed for the precise orbit determination and propagation of celestial bodies, specifically focusing on Main Belt asteroids and Near-Earth Objects (NEOs).

Developed within the **ITALOccult project**, this software represents the state-of-the-art in computational astrodynamics, aimed at reducing ephemeris uncertainties to sub-milliarcsecond levels.

### Key Features:

- **Rigorous Dynamics:** Relativistic models (EIH) & JPL DE441.
- **High-Order Integration:** Adaptive RKF78.
- **Precision:** Validated against NASA/JPL Horizons.

ITALOccult Project  
Open Source Scientific Software



AstDyn

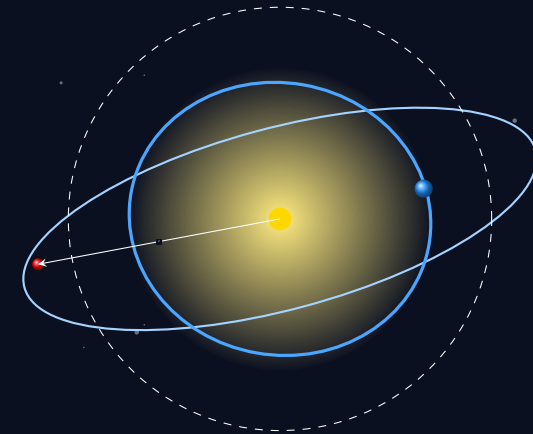
Scientific Reference Manual

Michele Bigi

# AstDyn

## Scientific Reference Manual of the C++ Library

*The ITALOccult Framework for High-Precision  
Asteroid Dynamics & Occultation Prediction*



Michele Bigi