

# Theoretical Astrophysical Observatory (TAO)



## About TAO!

The Theoretical Astrophysical Observatory (*TAO*) houses queryable data from multiple cosmological dark matter numerical simulations and galaxy formation models, in a database that is optimised for rapid access. *TAO* is accessible via the "cloud" through a browser for access anywhere in the world by the astronomical community. It boasts a clean and intuitive web interface. We avoid the need to have the user program SQL queries by providing a custom point-and-click interface to select galaxies and their properties, which auto-generates the query code in the background. Query results can be funnelled through additional "modules" and sent to the Swinburne OzSTAR supercomputer for further processing and manipulation. These include the ability to:

- Construct observer light cones from the simulated data cube;
- Generate complete spectral energy distributions for model galaxies to provide multi-wavelength coverage;
- Produce mock images of the sky in each simulated universe;
- Select from preset "virtual telescopes" that make reconstructing existing surveys easy.

*TAO* is configured in such a way that additional modules can be built and easily inserted into the data chain as needs require in the future.

This documentation is organised in three main sections:

- [Quickstart Guide](#)
- [Technical Guide](#)
- [Data Guide](#)

More details can be found in the official *TAO* paper, [Berynk et al. 2016](#). Additional questions, problems or comments can be sent by selecting [support](#) in the navigation bar at the top of the page.

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