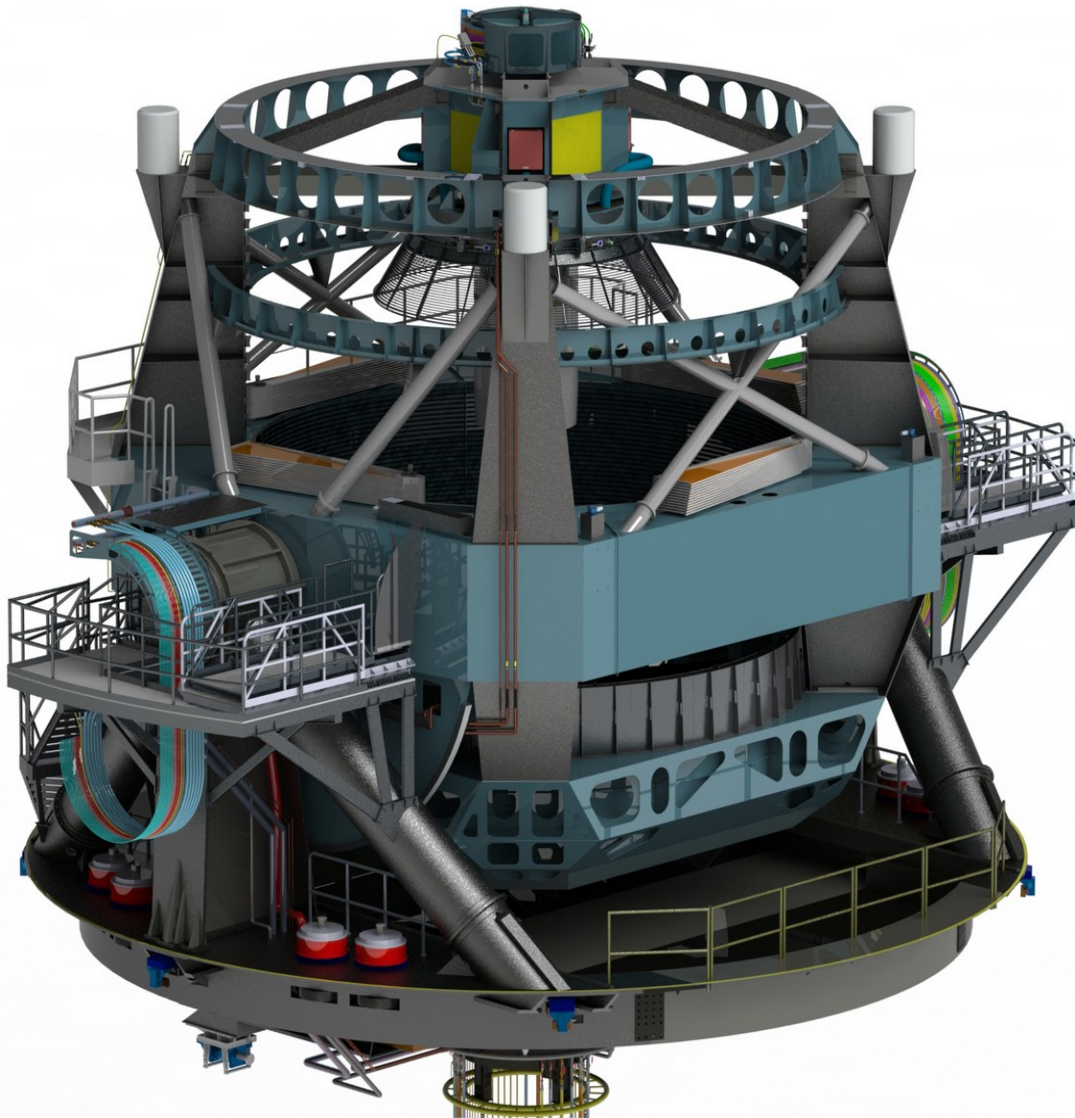


LSST spectroscopy



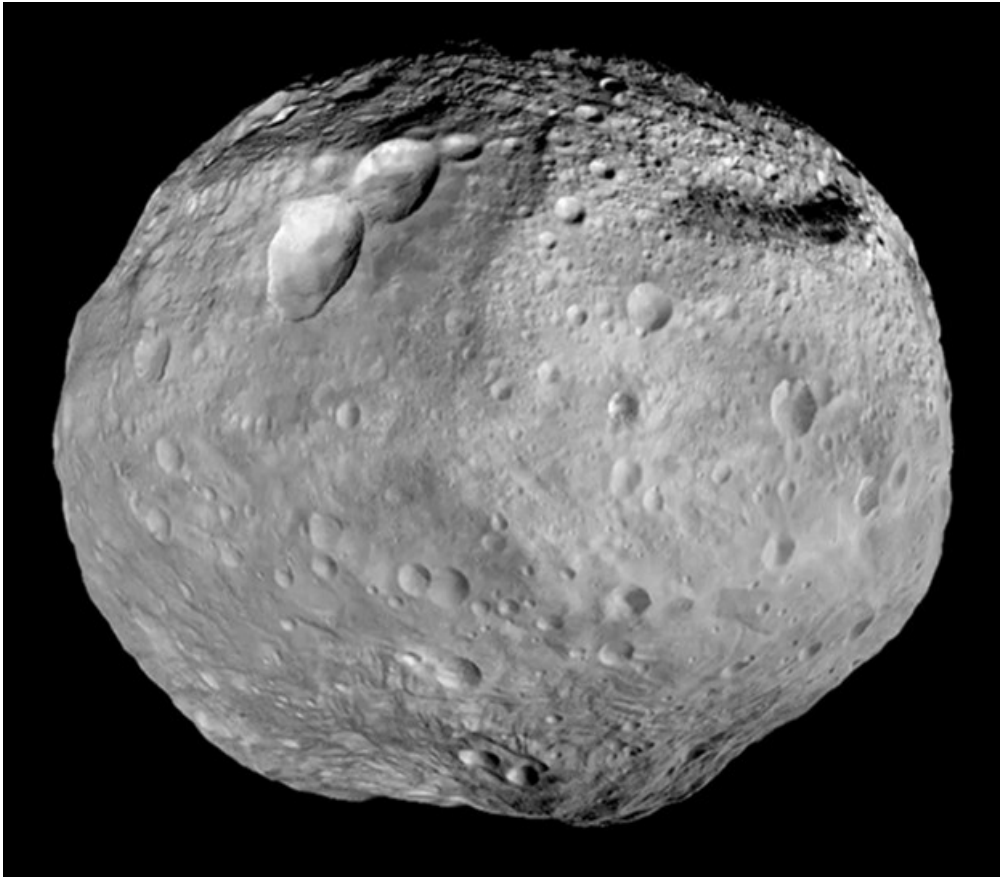
LSST will be the largest wide field telescope
Starts science observations in 2023

Design a spectroscopy upgrade to LSST
Replace prime focus camera with multi-object spectrograph

Assume that LSST survey will last 5yr, and then you will conduct a 5yr spectroscopic survey

Try to acquire spectra of as many faint targets as possible (galaxies), and try to be significantly better, or complement other facilities (LAMOST, Subaru Prime Focus Spectrograph)

NEO characterization



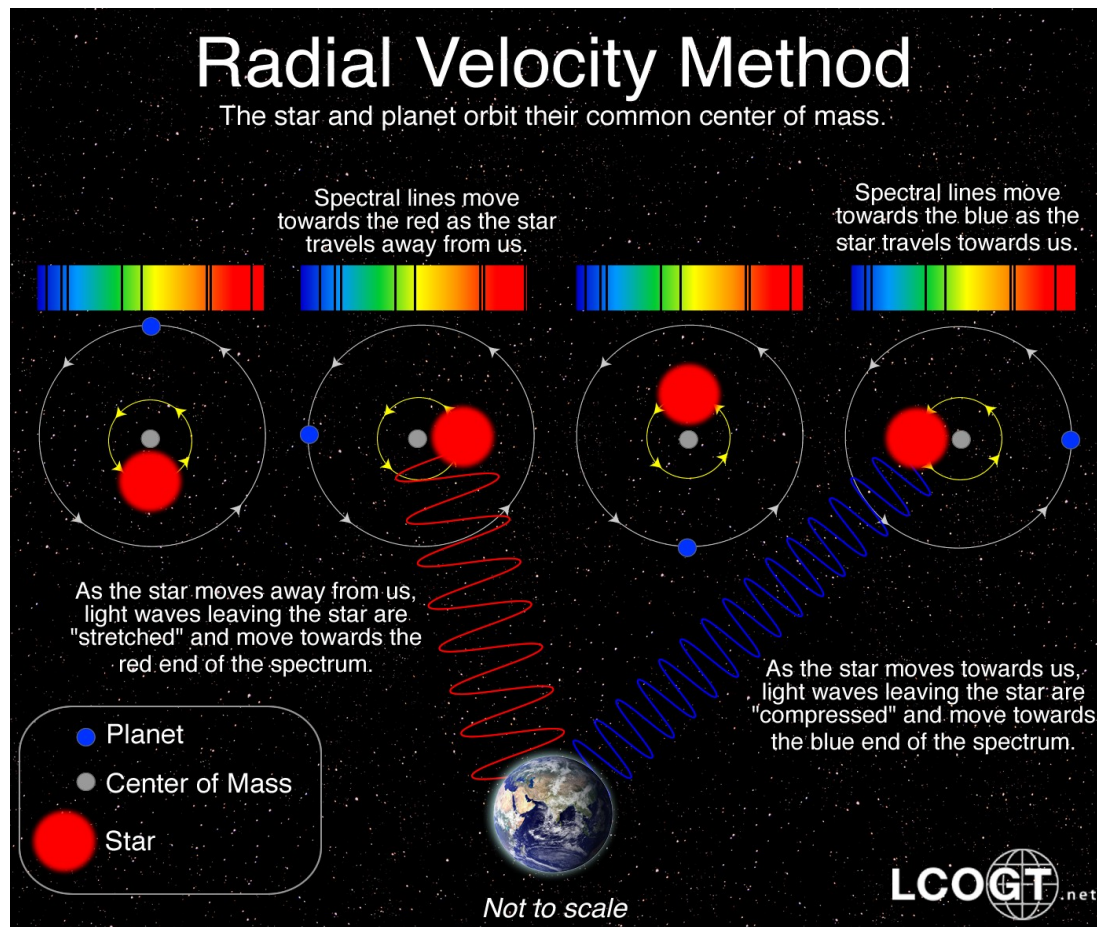
You have found a large number of NEOs with a ground-based survey.
Due to poor data quality (astrometry), 100s of them are still potential impactors

- Get better orbit prediction (astrometry)
- figure out how massive they are (radius, composition)

Think about:

- space-based astrometry mission
- spectroscopy
- multi-wavelength observations (→ radius)

Radial velocity exoplanet survey



Radial velocity (RV) spectrographs can discover exoplanets and measure their masses

RV requires lots of telescope time to followup transit discoveries

TESS mission will find many more transits than need to be followed with RV

Current RV facilities are limited by observing time and can only measure one star at a time

→ design RV survey program able to follow simultaneously many stars

Explore tradeoff between single large field telescope (multi-object) and multiple narrow-field telescopes