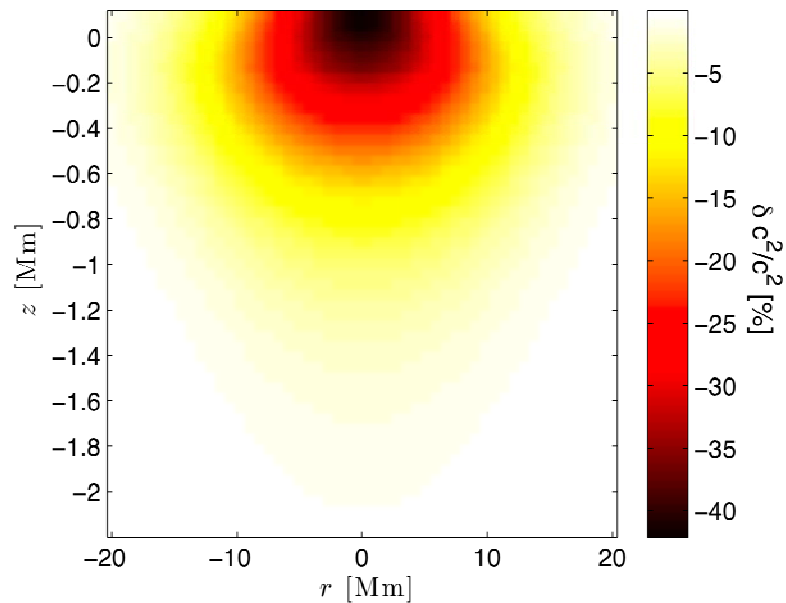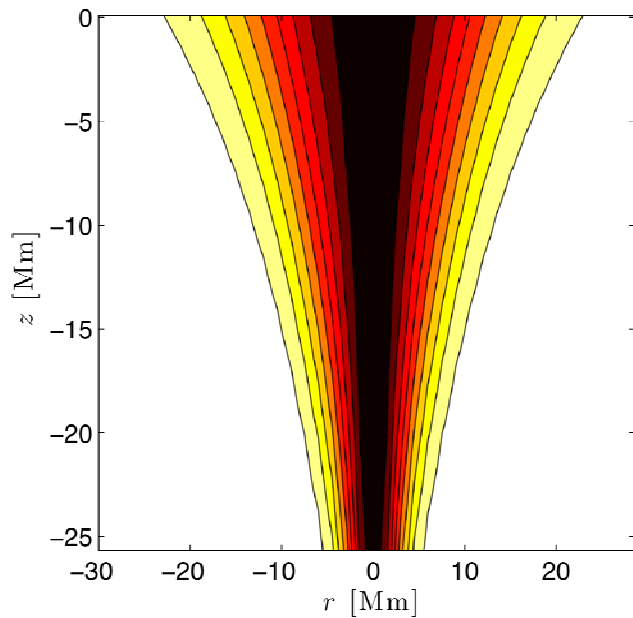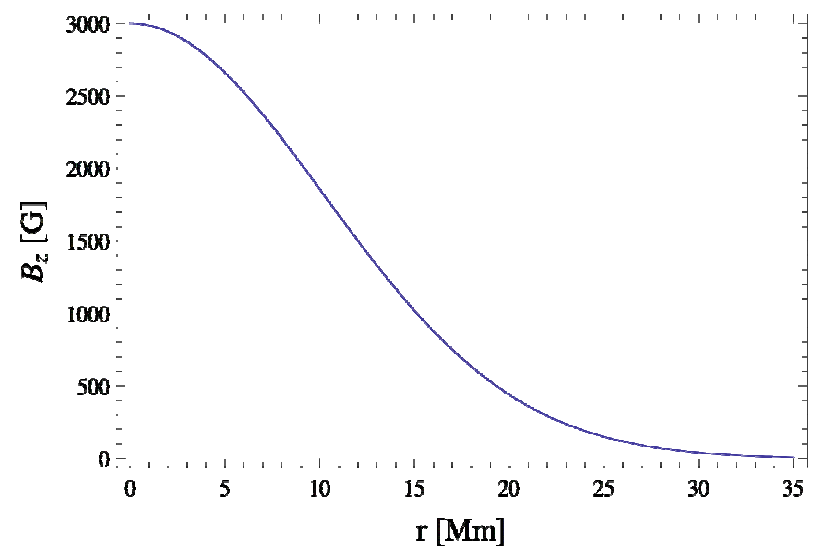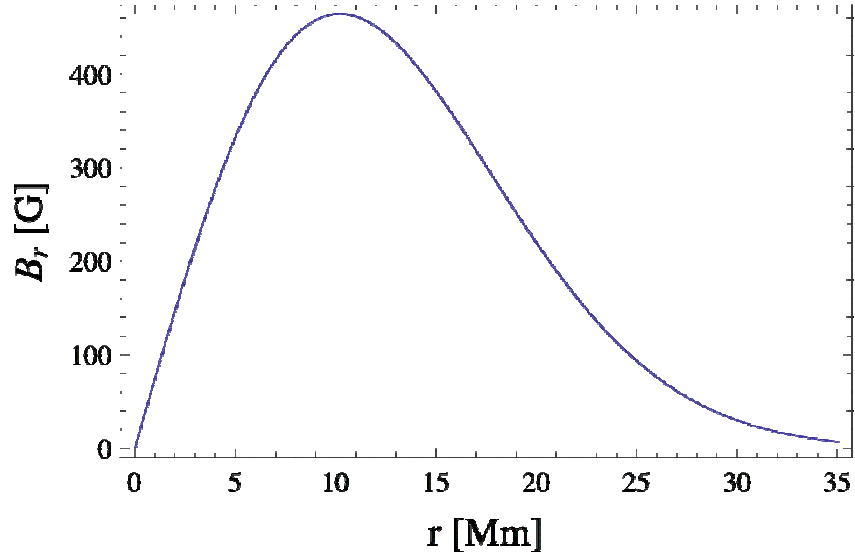# NUMERICAL SUNSPOT SEISMOLOGY

Shravan Hanasoge

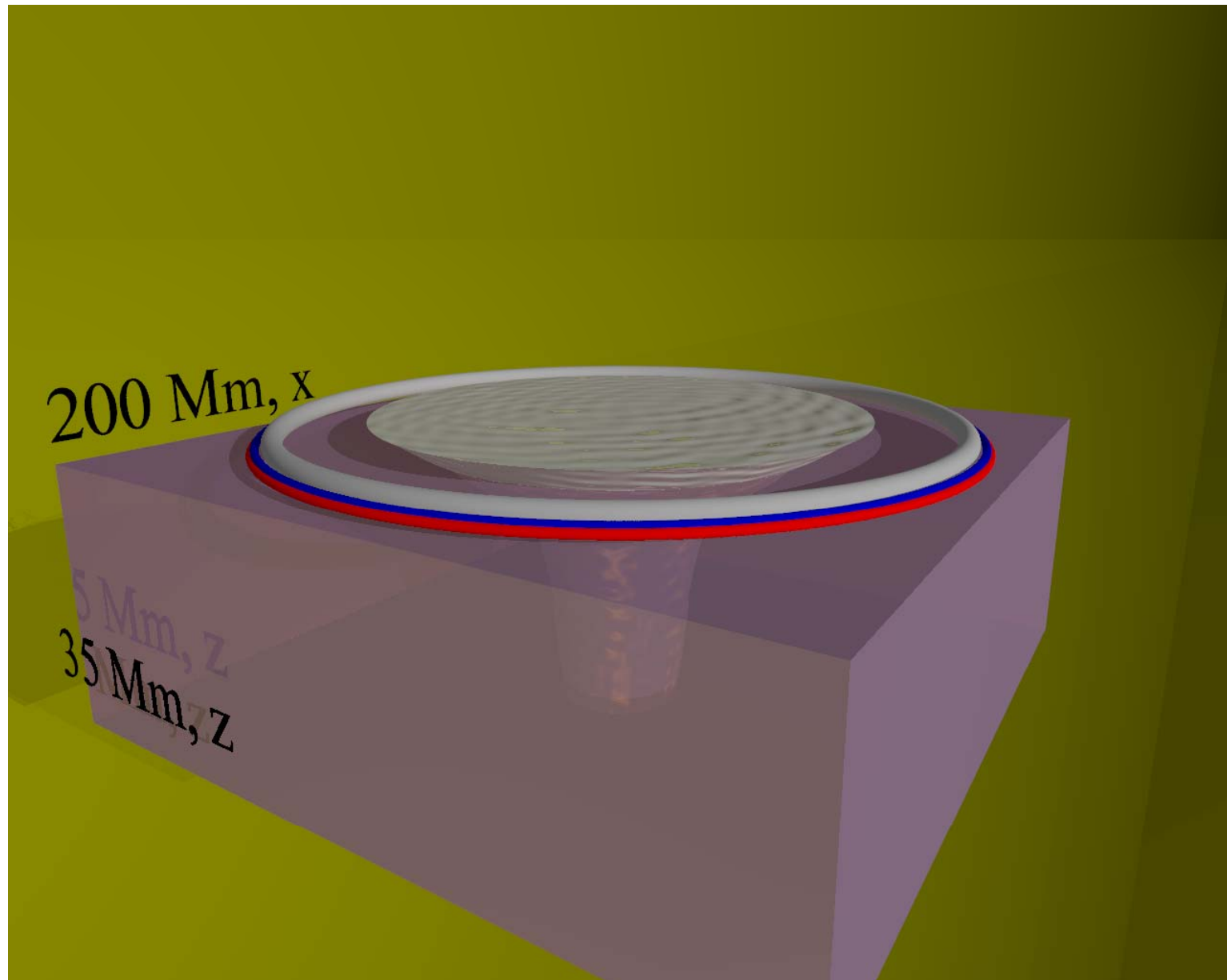Max-Planck-Institut-fuer-Sonnensystemforschung

Observations surpass theory

- High-quality observations (MDI, Hinode, upcoming SDO)

- Reasonable methods to measure wave statistics (TD, Ring diagram, Holography)

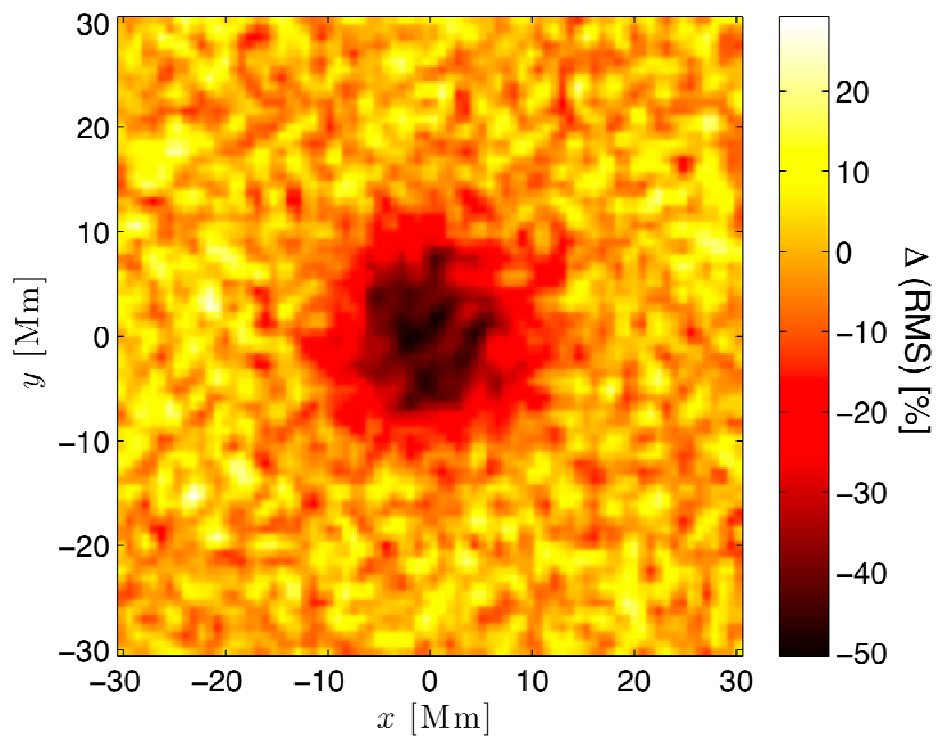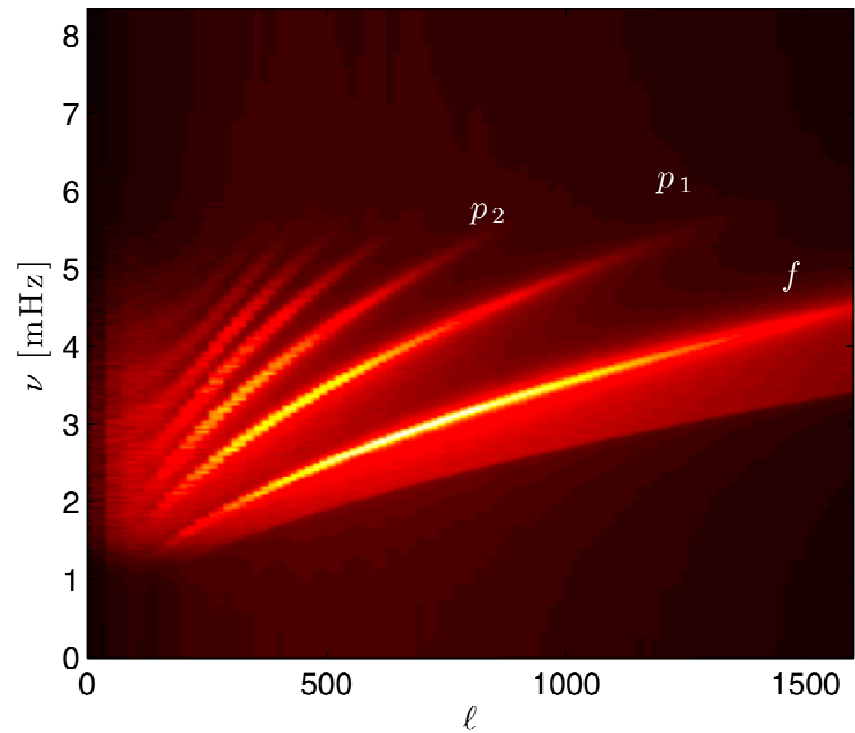- Insufficient theoretical basis to interpret

Sunspot model

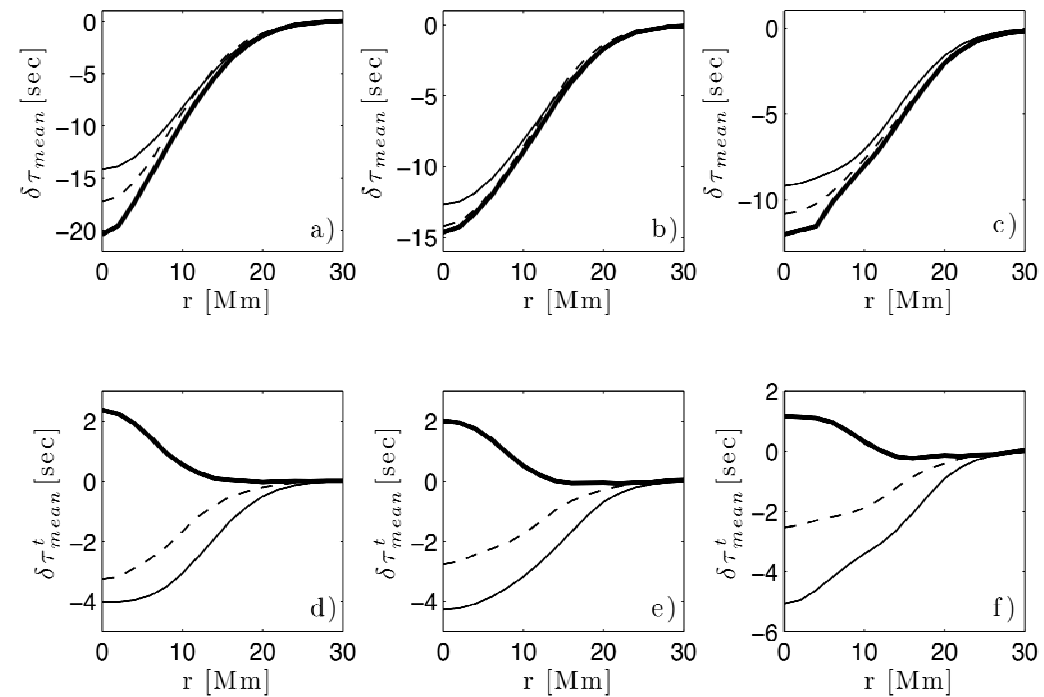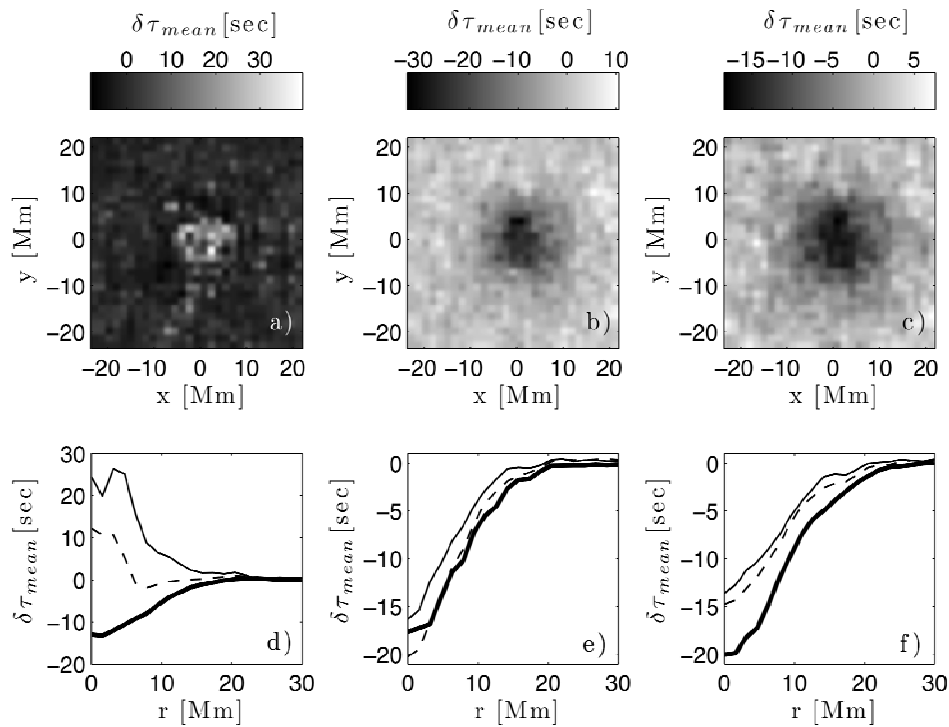# Simulation box

Statistics of simulated sunspot

Power map

Power spectrum

Time shifts
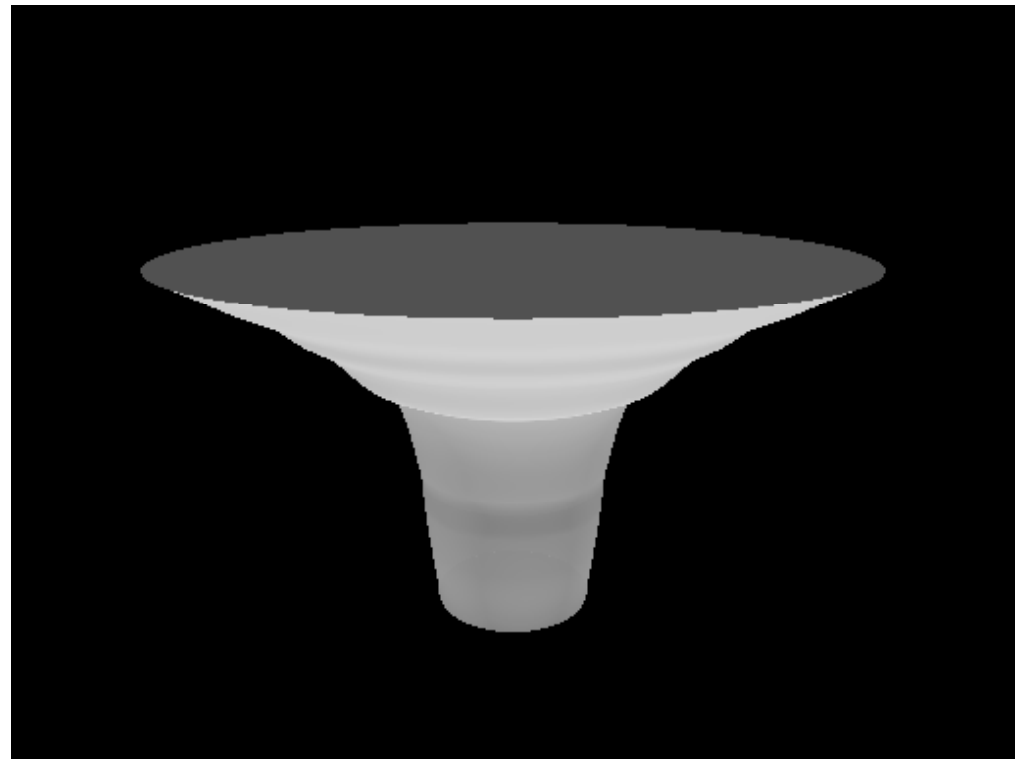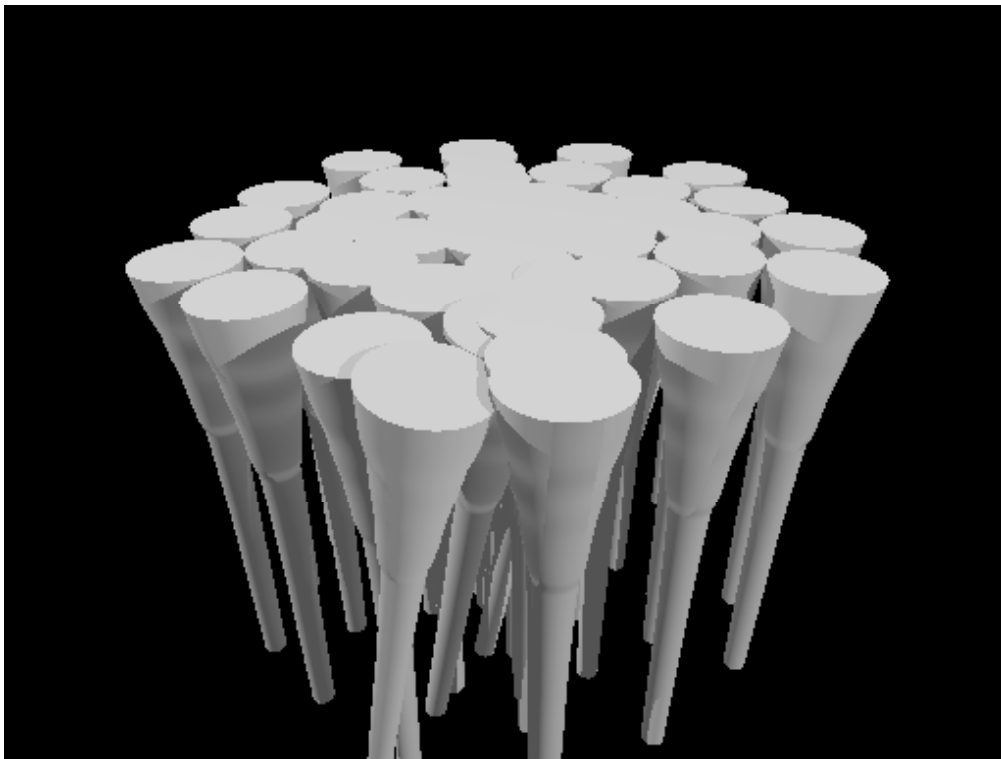

MHD Wave Simulations

MHD Ray Theory

From Moradi et al. (2008)

Close to the answer? Need:

- sophisticated, realistic forward models

- inverse techniques that account for MHD processes

- a deeper understanding of the wave statistics that are being measured

- ?

Spaghetti or tree trunk?

Rempel et al. (2008) - cannot sustain spaghetti

Solanki (2003) - spaghetti inconsistent with field strength