



MULTI-OBJECT SPECTROSCOPY IN THE NEXT DECADE

Open Discussion: Technical challenges



Open discussion: what are the technical challenges in ...

1. ...instrument design
2. ...survey design
3. ...data processing
4. ...data analysis

1. Technical Challenges in instrument design

- Rebecca Bernstein's compelling intro
- Focus first on 10-m telescopes
 - Instruments to be built in coming 10 years
- Most annoying features of current instruments
- Limits to 'make everything bigger'
- Target selectors
 - Slits / fibres / slicers / IFUs / mems

1. Technical Challenges in instrument design

- Fibres
 - Cover seeing spot: fibre core 100 micron -> 1 mm?
 - Mini-bundles. Conical fibres?
- Size of focal plane vs size of detector
 - CCDs with larger pixels

2. Technical challenges in survey design

- Are there any?
- What works and what does (did) not work
- Tuning survey simulation efforts, tools
- Should facilities encourage / demand survey prototyping or survey demonstrator

3. Technical challenges in data processing

- Which is most sensitive part of data reduction
- Sky subtraction
 - direct / PCA / 'Kelson'
 - Fibre sky sub: offsets vs sky fibres
- Reduce data vs un-reduce the models
 - Never touch the pixels!?! (Adam Bolton's talk)
- Have pipelines ready for survey simulations?
- Data volumes



4. Technical challenges in data analysis

- Back to college to learn Bayesian statistics?
- Analysis = pixel predictors?

5. Integrated solutions to points 1-4?

- Design instruments with given survey design in mind
- Design surveys using the pipelines?
- Design pipelines for each science case?