Current Coating Results

- **Discussion of white paper – errors and omissions**
- Are we measuring everything we need to be?
  - Mechanical vs optical
- Do we have enough personpower?
- Is our relationship with our vendors what we want/need?

Future Coating Plans

- **Concentrate on single layer of one material?**
- **Concentrate on dopants and new materials?**

- Titania with silica dopant
- Lutetium and/or other rare earth dopants
- Hafnia with dopants
- Multiple dopants
- Cobalt dopant revisited with stabilizing additional dopant?
- Dopants into silica?
- Better measurement of silica? On sapphire substrate?
- Nitrides ?
- Zero stress, systematic, ozone and helium annealing
- Helium ions rather than argon as bombardment species?
- Non-periodic coatings or other variations in thickness

Other Issues

- Need more/better measurements of other properties (Y, ρ, σ, …)
  - Further work with Stanford collaborators and acoustic impedance
  - Brillion scattering?
- Need more examination of coatings for makeup and structure
- How good a coating can the TNI verify?
- Can we make use of more theory and modeling
  - Hai-Ping Cheng at Florida – silica-like loss mechanisms for tantala?
  - Have we exhausted avenues to bring in material scientists?
  - Insights from temperature dependence of mechanical loss?
  - Better thermal noise predictions for finite mirrors and Mexican hats
- How close to a 50/50 beamsplitter can we get? Do we need?
- Power density a problem? PRM, MC, elsewhere?

Project Management Questions

- When do we switch to absorption reduction/optical issues?
  - Is 0.1 ppm absorption needed/desirable/feasible?
  - Do we need a spec for inhomogeneous absorption? Is it a problem?
  - Is radially dependant absorption on a AR coating useful?

- Mexican hat coatings ready for consideration for advLIGO?

- What coatings to put in TNI? How many total?

- Do we need new procedures for cleaning, handling, and installation? New equipment (like clean rooms)?

- Relationship with vendors? How many vendors?

- Final two coating runs with CSIRO