



# Introduction to the new 'GEO sensing and control group'

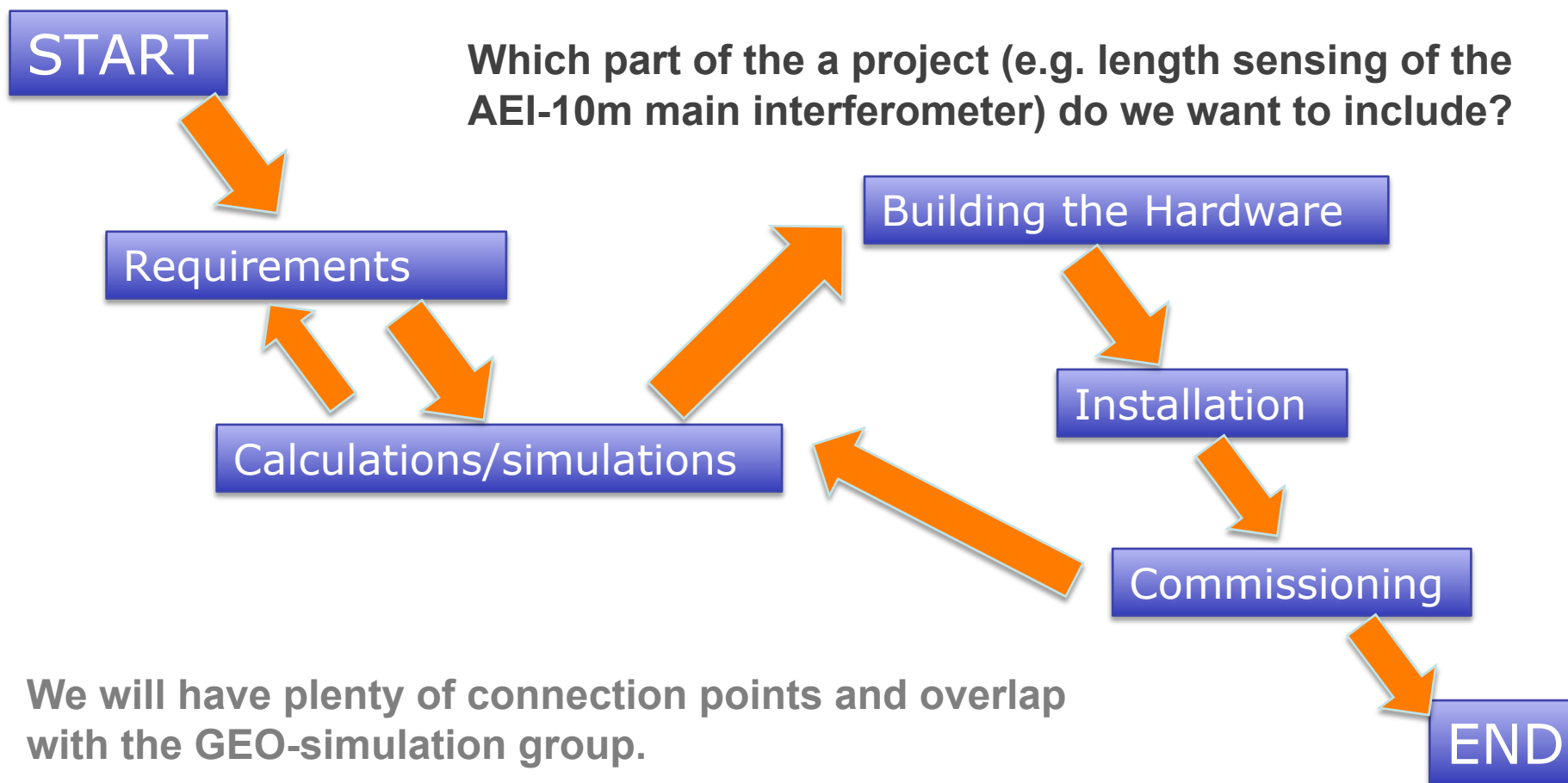


# Which topics does 'Sensing and Control' include?

- ➔ Traditionally in our field this is associated with interferometric sensing and control ('locking').
- ➔ What do WE want to include?
  - Length sensing and control + alignment sensing and control = interferometric sensing and control
  - Actuators
  - All types of control loops (slow/fast, analog/digital)
  - ....
  - ....
  - everything in between
  - ....
  - ....
  - Control of suspensions (local damping)
  - Environmental sensing (Seismic, temperature)

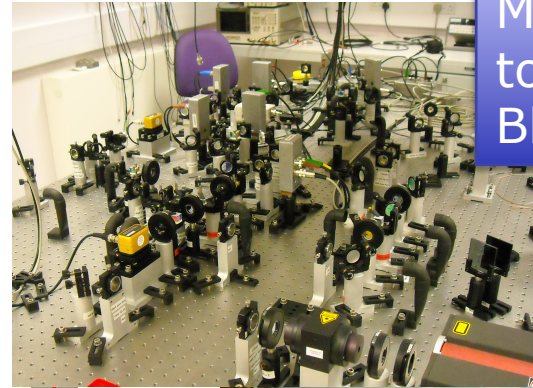
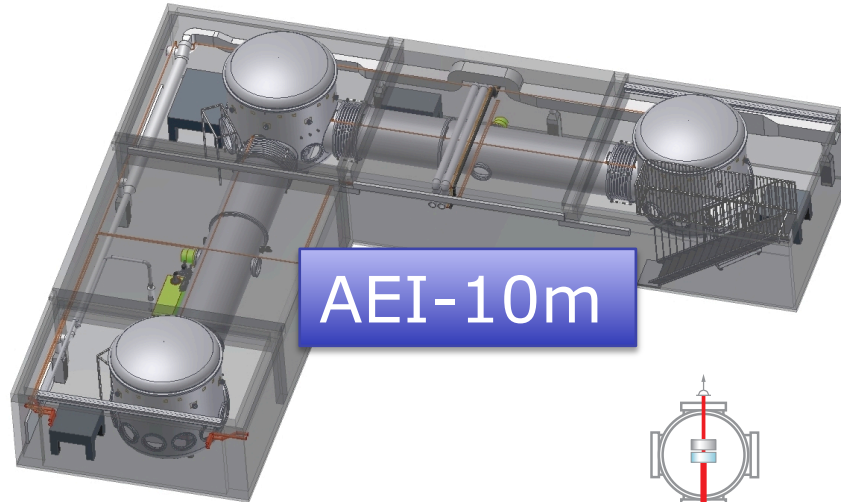


# Where does the 'Sensing and Control' group start and stop?

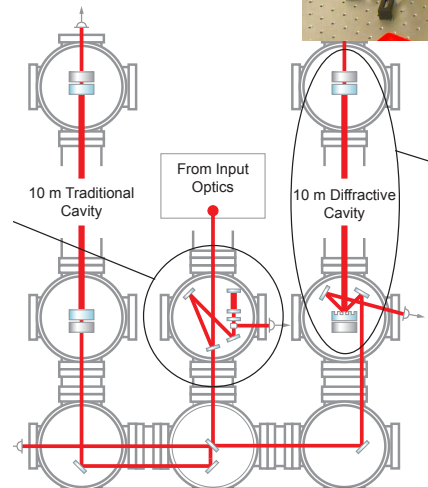
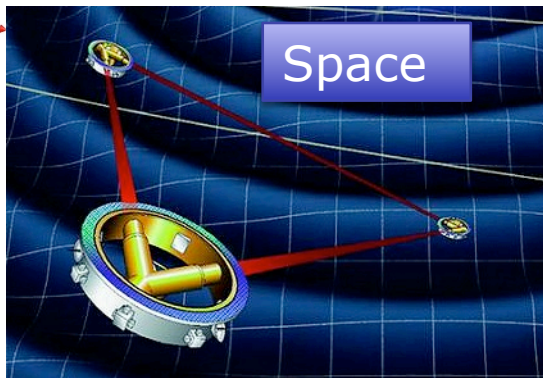


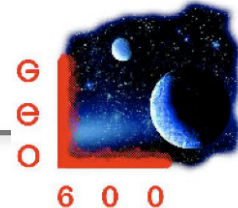


# Many different projects on many different scales within the GEO-collaboration



Many many Table-tops: Hannover, Bham and Glasgow





## Some potential hot topics

**AEI-10M**

SENSITIVITY OF  $5E-20M$

**QND**

**ADAPTIVE FILTERS**  
WIENER FILTER ARE ALREADY USED IN OUR FIELD

**Optical rigidity**

**Digital  
Control  
Systems**

Just some examples of topics I personally believe we could have some fun with over the next year ...



# How do we want to run this group?

- ➔ We need to define what we want to do! Several possibilities available. Here two extremes are given –we can do everything in between:
- ➔ A discussion forum (with meetings on a monthly/every few months) similar to the GEO simulation?
  - People working on all the various experiments discussing common techniques and knowledge transfer.
  - No responsibility to deliver ...
  - Small time effort, includes all projects, lots of fun ...
- ➔ A focused working group
  - Team of people closely working together on (one or a few) well defined topics.
  - Would need much more meetings/telecons and time of the involved people.
  - Could take on responsibilities, if enough members could contribute a significant amount of time.
  - Satisfaction of 'really doing stuff' ...



# Let's try to use today to find out what **WE** want.

Please have these questions in mind when listening to the presentations and for discussions over lunch etc ..

**We will have plenty of time in the afternoon for coming to a consensus.**

09:30 - 10:00	Welcome and Introduction to the meeting Stefan Hild [30']
10:00 - 10:30	Future ISC challenges in GEO-HF Hartmut Grote [30']
10:30 - 11:00	Future ISC challenges in the Glasgow 10m Bryan Barr [30']
11:00 - 11:30	break
11:30 - 12:00	Future ISC challenges for the AEI-10m sub-SQL-ifo Stefan Hild [30']
12:00 - 12:30	ISC group from the simulation groups perspective Andreas Freise [30']
12:30 - 14:00	Lunch Break
14:00 - 14:30	Digital vs Analog control at the beginning of the 2010 decade Martin Hewitson [30']
14:30 - 15:00	Overview of the ALIGO CDS Christian Graef [30']
15:00 - 15:30	Experience with CDS for control of the GEO600 OMC Mirko Prijatelj [30']
15:30 - 16:00	Sensing and Control of the AEI-10m reference cavity Fumiko Kawazoe [30']
16:00 - 16:30	break
16:30 - 17:30	Discussion: Future of the GEO ISC GROUP all [60']
	* What are the aims of GEO-ISC group? * How can we organise and run this group to achieve the aims?
17:30 - 17:45	CLOSURE and date for next meeting Stefan Hild [15']

