E.T. Design Study & European roadmaps

Michele Punturo/Harald Lück

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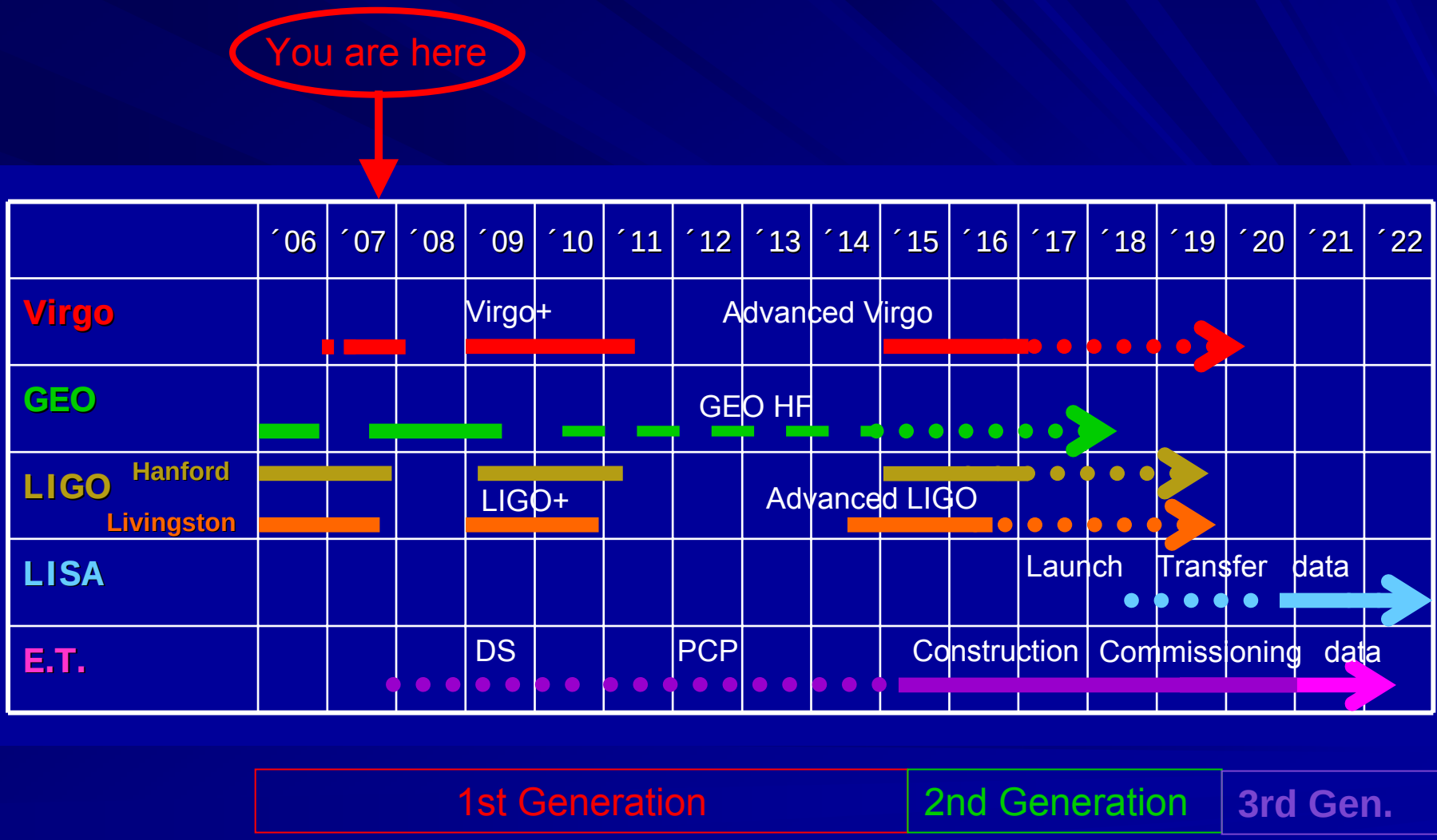
ASPERA Roadmap

- ASPERA = collaboration of European funding agencies involved into astro-particle physics to coordinate research at European level
- Goals:
  - Promote **Astroparticle Physics** within the member states of ASPERA
  - Stimulate coordination and cooperation within the European astroparticle community
  - Prepare future decisions at **National and European levels**
- Write roadmap to define goals on 10 year timescale
  - Cosmology and the early Universe
  - Particle Properties
  - Neutrinos as messengers from the Sun, supernovae and the Earth
  - The non-thermal Universe
  - Gravitational Waves (cochairs: Punturo, Lueck)

Astronet Roadmap

- ERA-Net-Project within FP6 of the EU; duration 2005 + 4 years.
- Participants: 9 European national ‚funding agencies' (CNRS-INSU, BMBF, ESO, INAF, STFC, NOTSA, MEC, NWO, PT-DESY; + ESA, MPG assosciated)
- Goal: create basis for coordination of long term planning of astronomy in Europe
- Write roadmap to define goals on 20 year timescale
  - LISA

Timelines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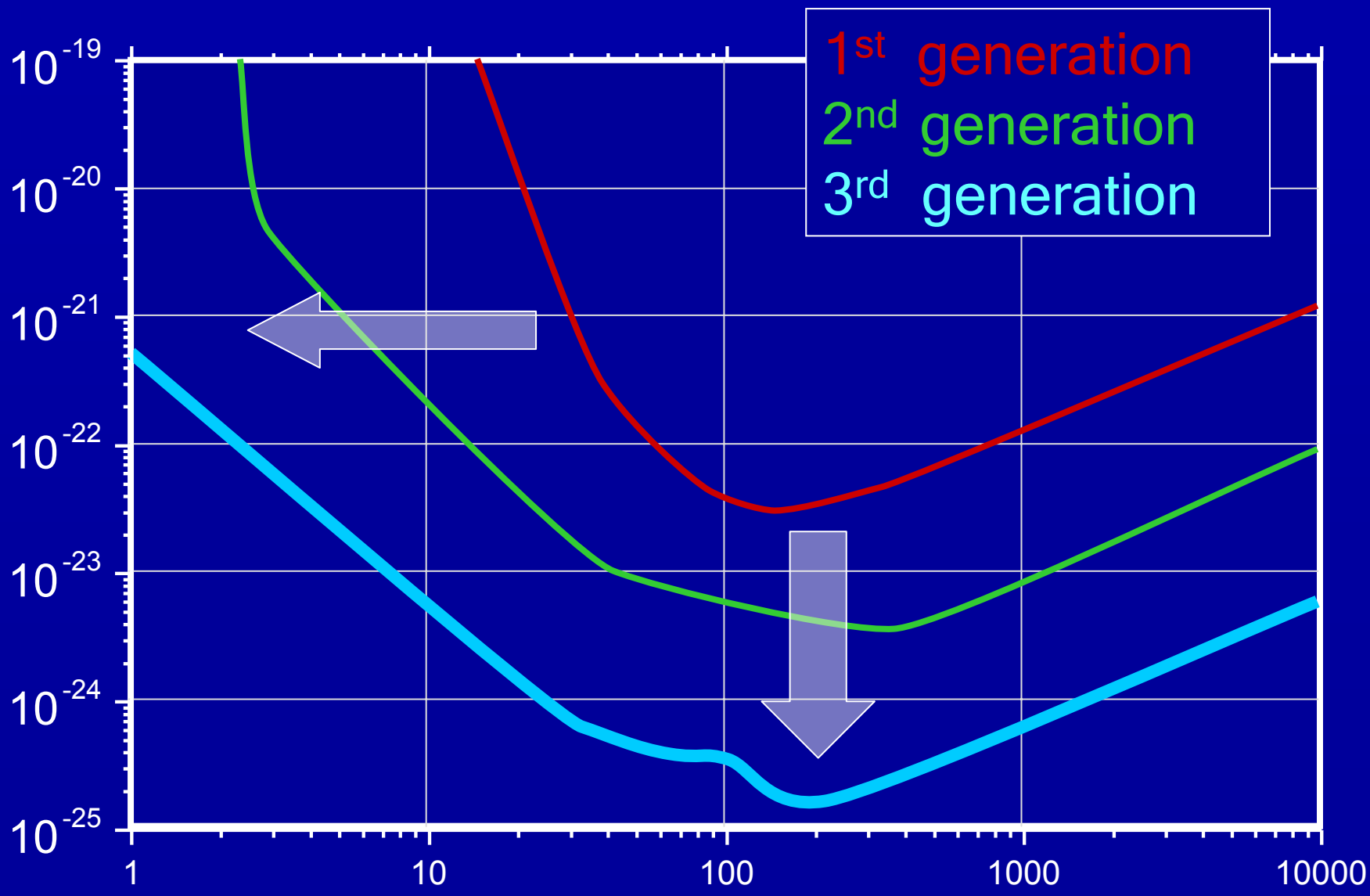
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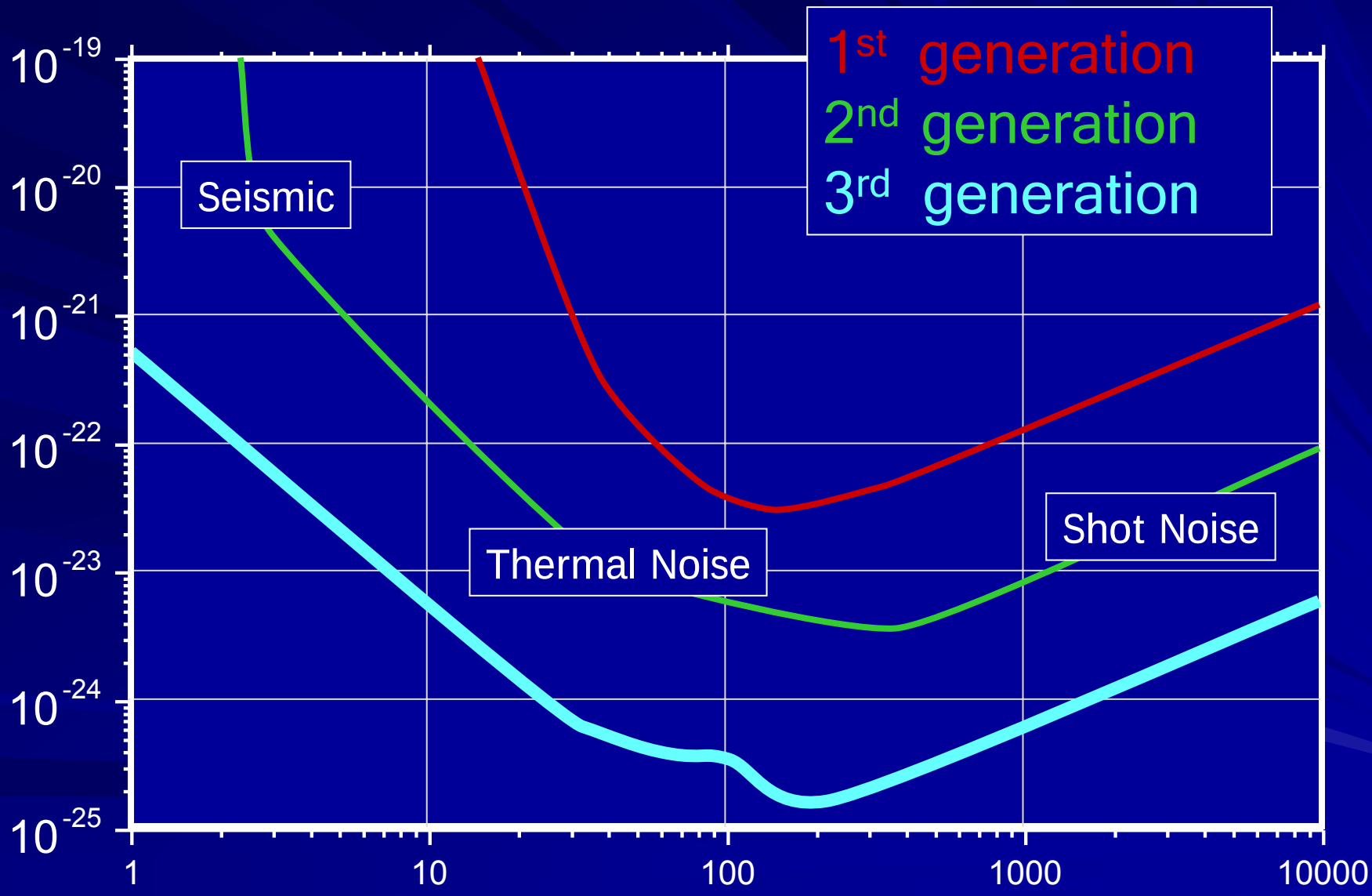
3 main noise sources



ET: Baseline Concept

- Underground location
  - Reduce seismic noise
  - Reduce gravity gradient noise
  - Eases low frequency suspensions
- Cryogenic
- Overall beam tube length ~ 30km
- Possibly Δ instead of L geometry

Conceptual Design Study
Start Feb. / March 2008

Working Packages:

Jo Van den Brand
P. Rapagnani

- 1 Site and infrastructure
- 2 Thermal noise of mirrors and suspensions / cryogenics

A. Freise

- 3 Optical configuration

B. Sathyaprakash

- 4 Astrophysics issues

M. Punturo

- 5 Management

The Participants

Participant no.	Participant organization name	Country
1	European Gravitational Observatory	Italy
2	Istituto Nazionale di Fisica Nucleare	Italy
3	Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V., acting through Max-Planck-Institut fuer Gravitationsphysik	Germany
4	Centre National de la Recherche Scientifique	France
5	University of Birmingham	United Kingdom
6	University of Glasgow	United Kingdom
7	Vereniging voor christelijk hoger onderwijs, wetenschappelijk onderzoek en patiëntenzorg	The Netherlands
8	University of Cardiff	United Kingdom

Science Team

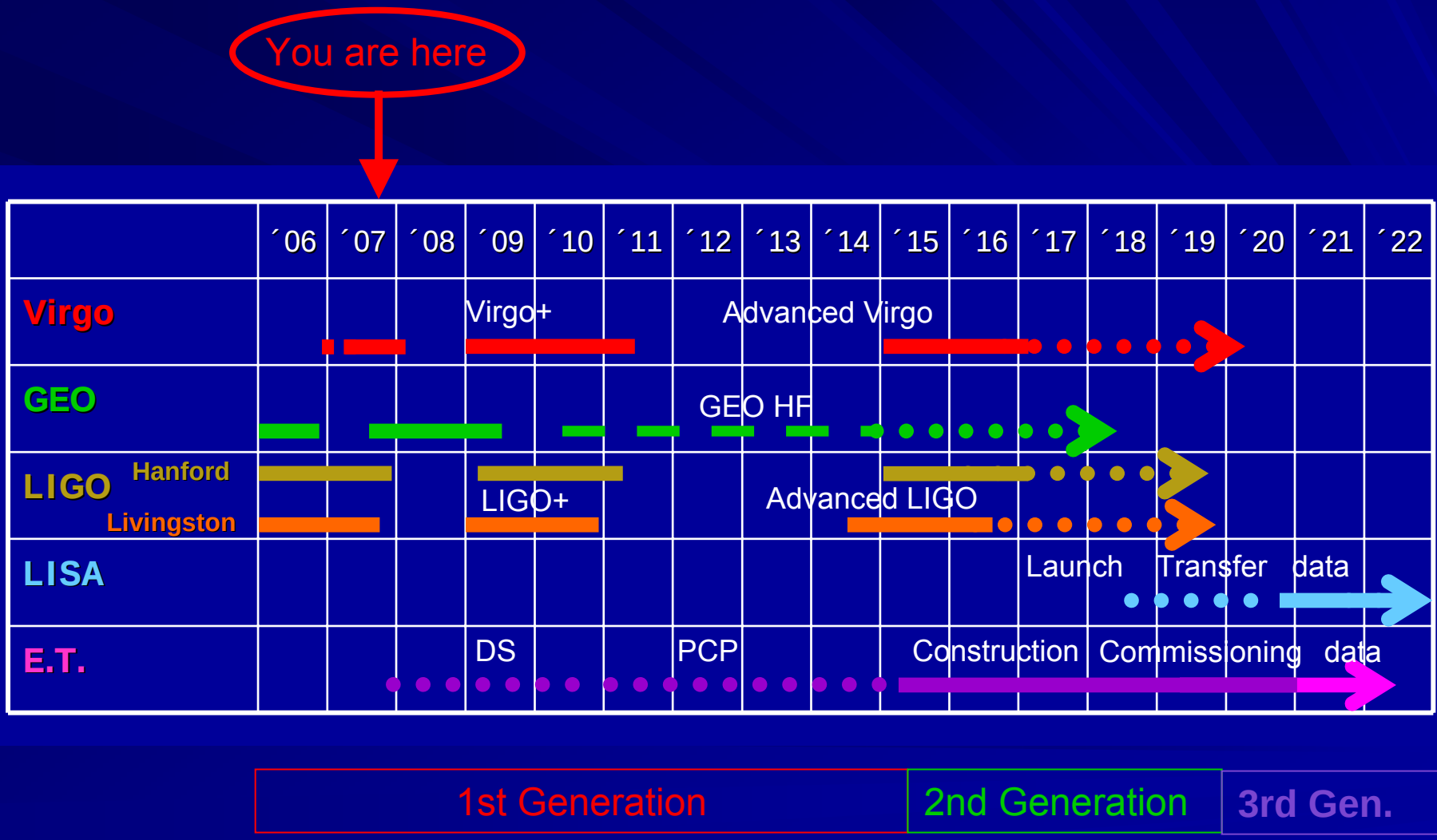
- Initially co-chaired by
  - GEO spokesperson (Karsten Danzmann)
  - Virgo spokesperson (Benoit Mours)
  - Virgo-EGO Scientific Forum (VESF) coordinator (Francesco Fidecaro)
- Members
  - Open to all members of GW community willing to contribute to the DS
  - Initial members will be the coordinators of the research groups participating in the project and the main scientists of the European gravitational wave community, indicated by the three co-chairpersons
- Meetings:
  - must meet at least once a year, during the annual project plenary meeting

ESF proposal being written to support Science team

Results to be achieved in the DS within the next three years

- Site selection: scientific, operative, legal, financial, administrative
- Seismic isolation, suspension, substrates, coatings compatible with cryogenic operation
- Geometry, topology, configuration of IFO with sensitivity < SQL; high power effects
- Optimize scientific output and define DA requirements

Timelines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