



# Why this session?

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AdV Coordinator



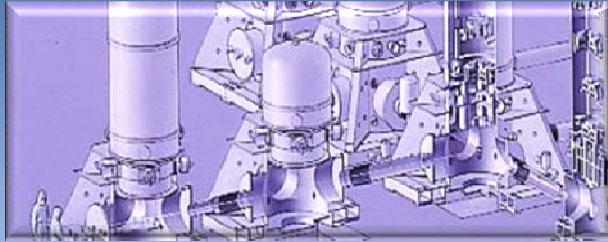
# ADVANCED VIRGO (AdV)



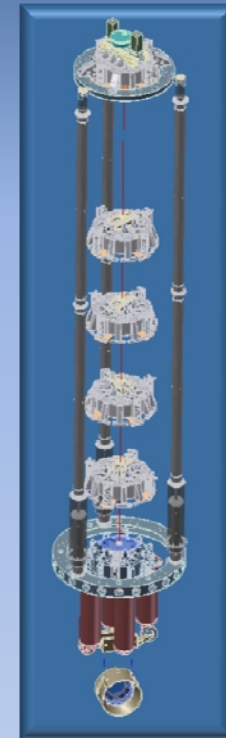
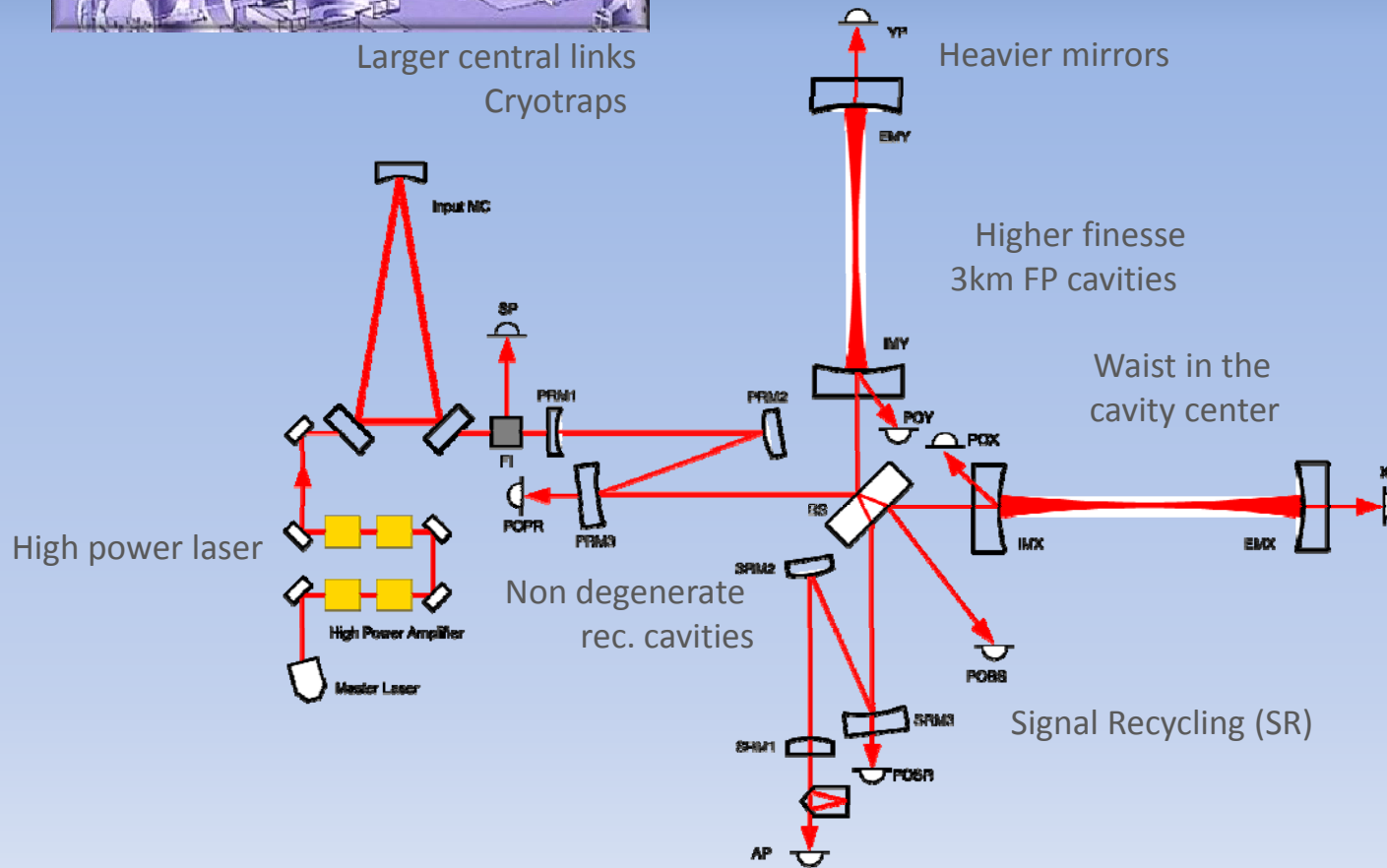
- ❑ [Advanced Virgo Preliminary Design](#) submitted to funding agencies Oct 08
- ❑ PROJECT GOALS
  - Upgrade Virgo to a 2<sup>nd</sup> generation detector. Sensitivity: 10x better than Virgo
  - Be part of the 2<sup>nd</sup> generation GW detectors network: up in data taking with Advanced LIGO
- ❑ Now under review:
  - started Nov 08, to end May 09
  - External Review Committee: B.Barish (chair), G.Cantatore, P.Dargent, H.Lück, C.Salomon, G.Tino
- ❑ *Advanced Virgo Reference Design and Project Execution Plan* to be released before the end of the review
- ❑ EGO Council decision on funding expected on July 09



# AdV PRELIMINARY DESIGN



Larger central links  
Cryotrap

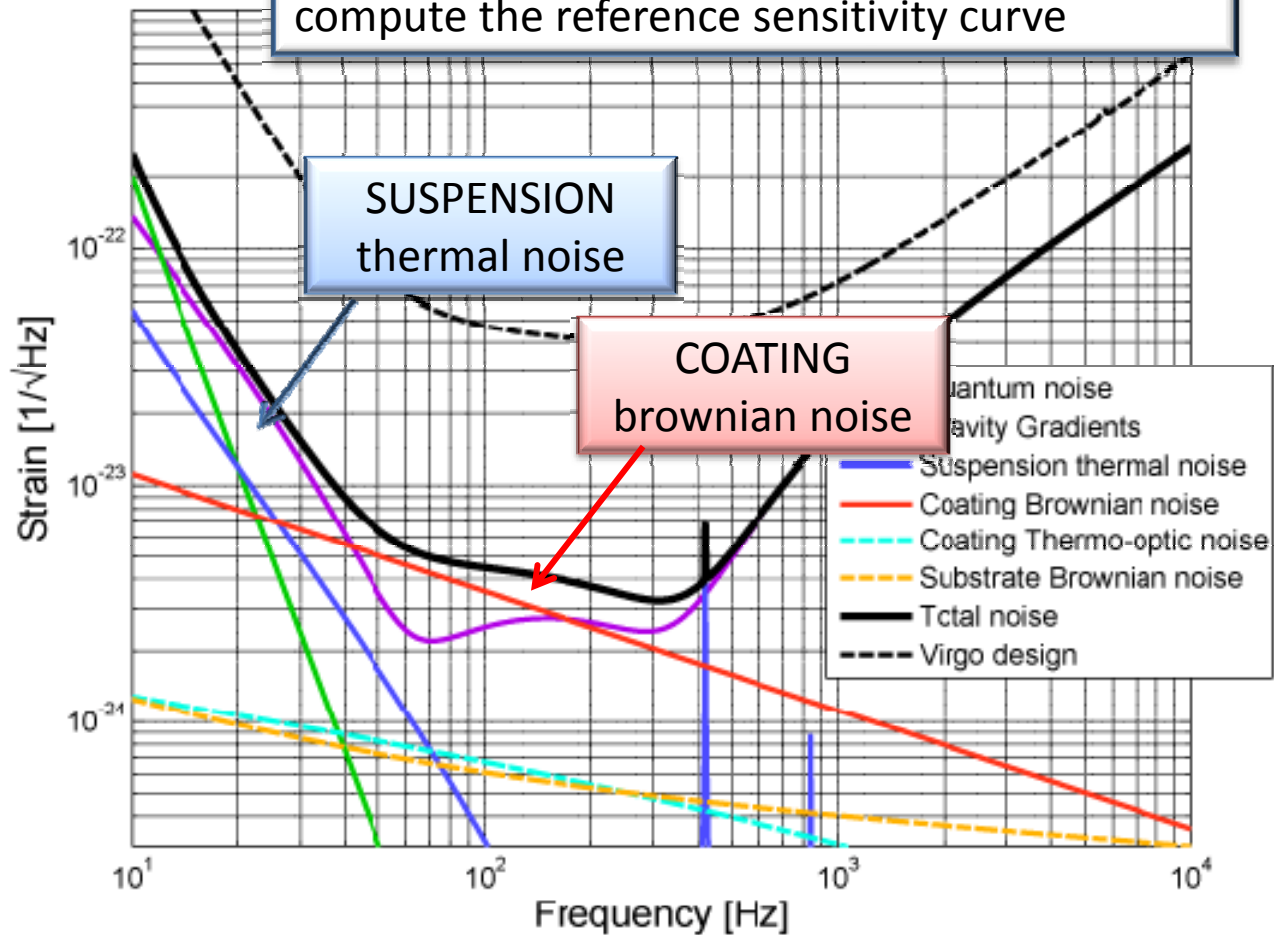


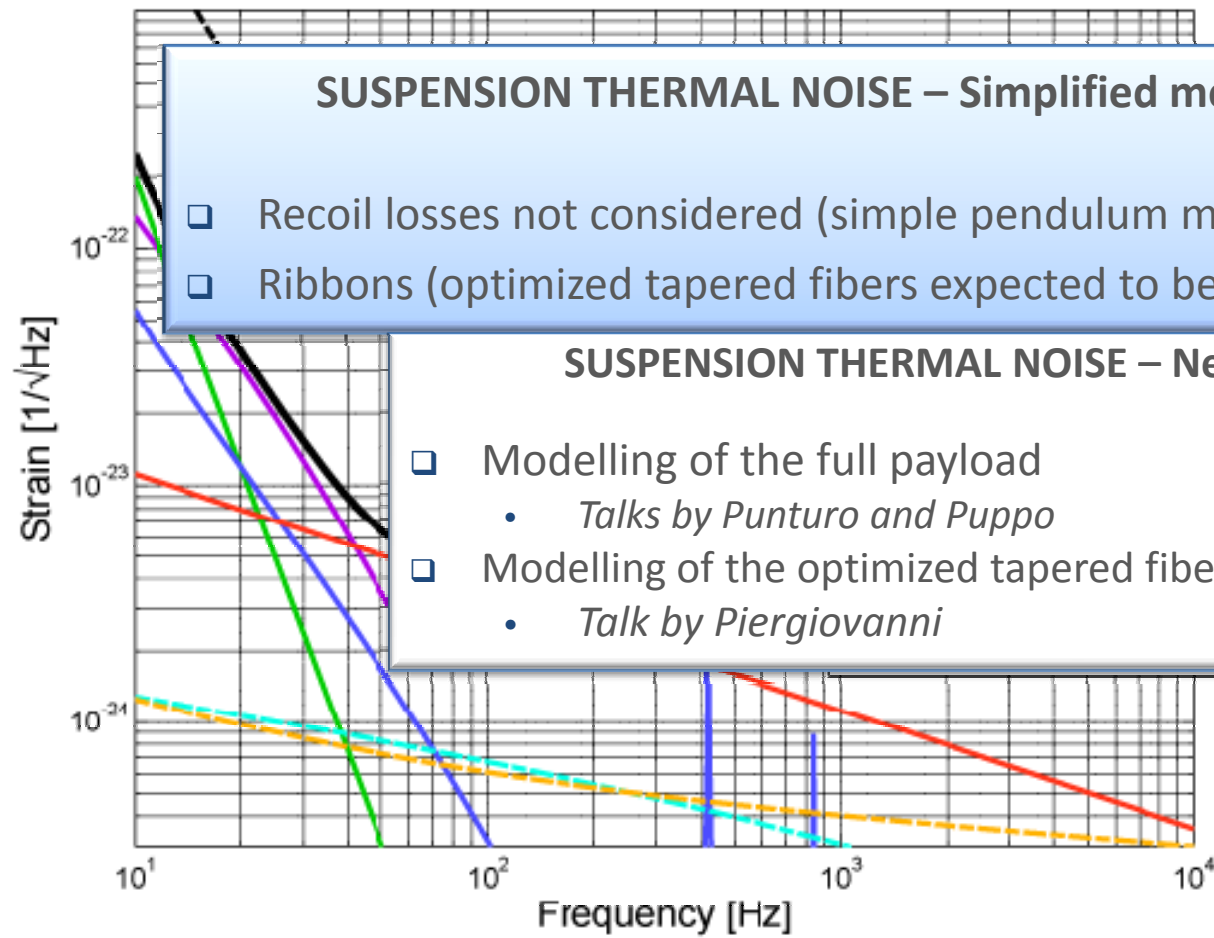
Monolithic suspensions

# AdV PRELIMINARY SENSITIVITY



LIGO's [GWINC](#) has been adapted and used to compute the reference sensitivity curve





**SUSPENSION THERMAL NOISE – Simplified model**

- Recoil losses not considered (simple pendulum model)
- Ribbons (optimized tapered fibers expected to be better)

**SUSPENSION THERMAL NOISE – Next steps**

- Modelling of the full payload
  - *Talks by Punturo and Puppo*
- Modelling of the optimized tapered fiber
  - *Talk by Piergiovanni*



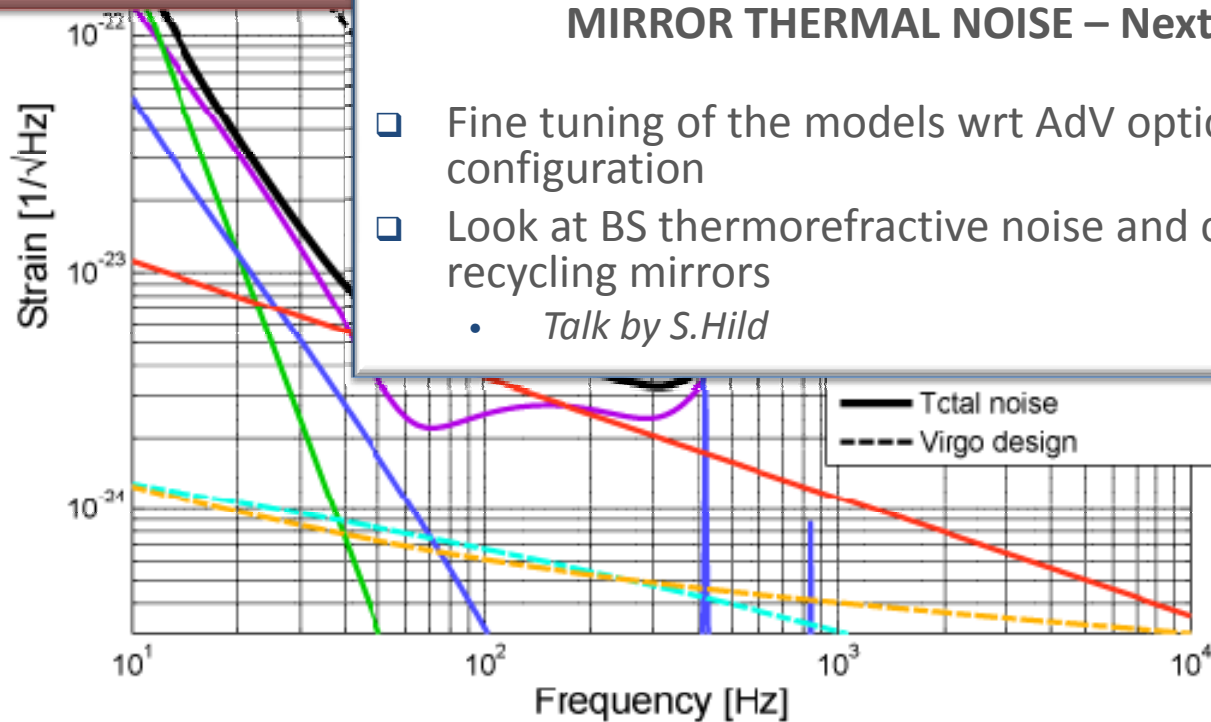
## MIRROR THERMAL NOISE

- ❑ Main contribution: coating brownian noise
- ❑ Substrate brownian and coating thermooptic are negligible



## MIRROR THERMAL NOISE – Next steps

- ❑ Fine tuning of the models wrt AdV optical configuration
- ❑ Look at BS thermorefractive noise and coating noise of recycling mirrors
  - *Talk by S.Hild*





# AdV REFERENCE SENSITIVITY



- ❑ The effort towards a more accurate modelling of the thermal noise sources in AdV has started. First open discussion in this workshop
- ❑ This will contribute to the completion of the AdV Reference Design
  - Steering the design choices (i.e. the payload)
  - Allowing to compute the AdV reference sensitivity curve

***All contributions are very welcome!***