



Virgo Update



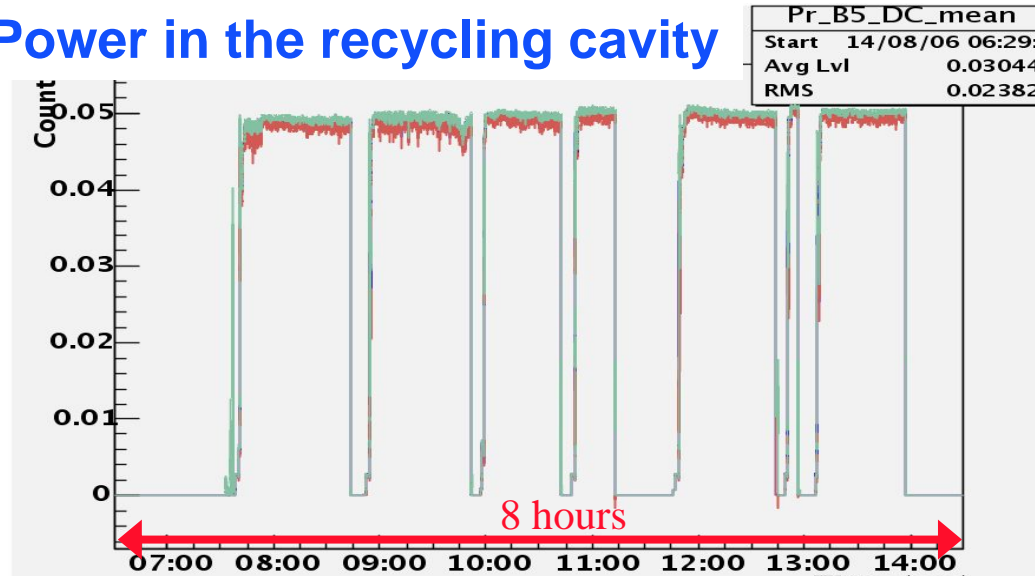
B. Mours
LIGO-G060440-00-Z



Recent Commissioning activities

- Long winter shutdown
 - ◆ Majors changes in the injection system, recycling mirror + other small changes
- Injection system restart + Commissioning
 - ◆ Beam matching (now 96%),
 - ◆ Centering, Alignment
 - ◆ Lock at full power
 - » 280 W on Beam Splitter
 - ◆ Instabilities after a relock
 - » Thermal effect on the side bands
 - ◆ Focus on robustness
 - » Alignment, Gain tuning,...
- Long locks since mid June

Power in the recycling cavity

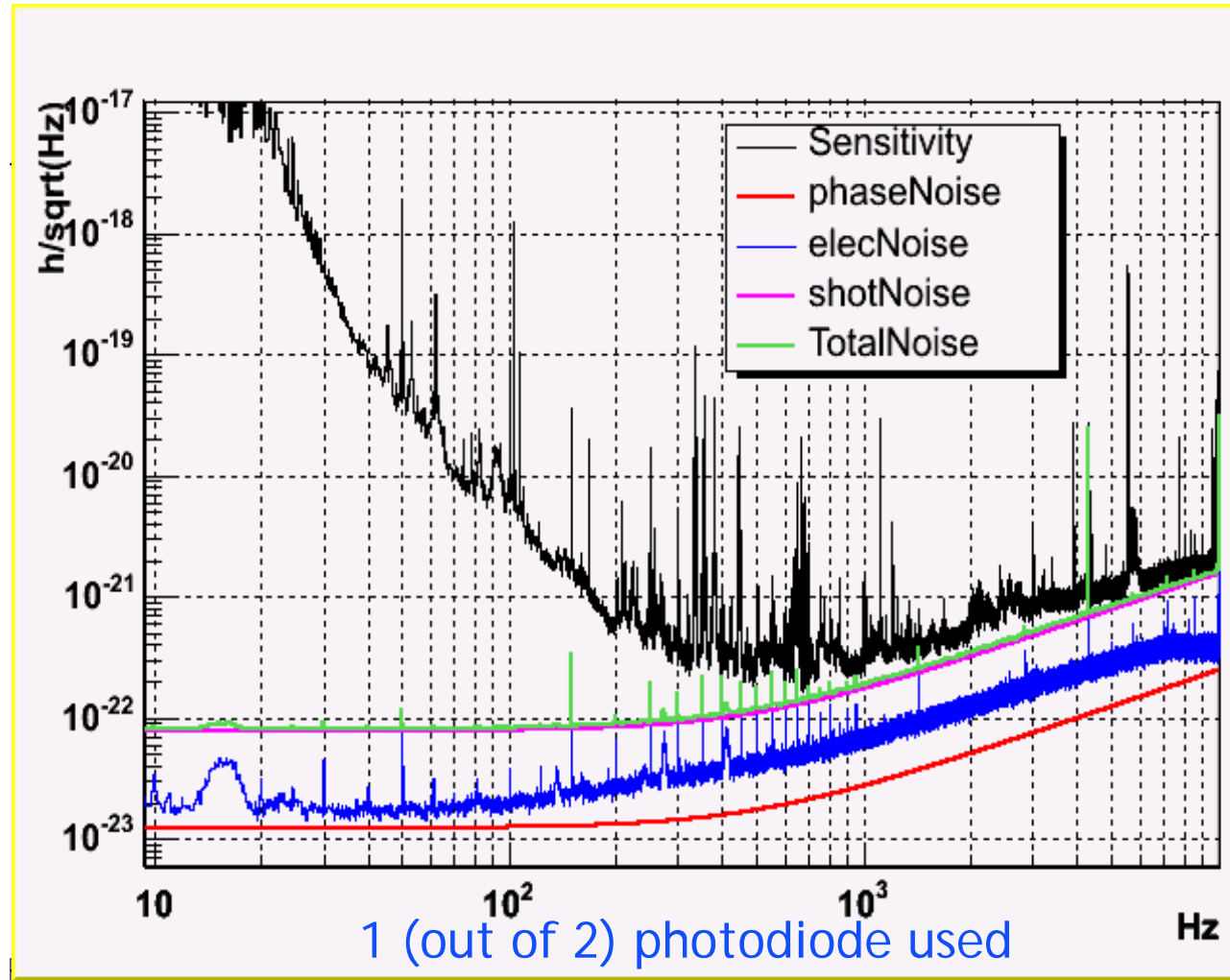


Example of yesterday (Aug 14)



Current sensitivity

- Aug. 8 example
- Still preliminary
 - ◆ Some alignment loops on “drift mode”
- Noise hunting just started





What next ?

- Now: continue the Commissioning
 - ◆ Priorities: Turn on all alignment loops; Noise hunting
- Then commissioning/noise hunting + **Science data taking**
 - ◆ Do noise hunting during the week
 - ◆ Take data during (long) week-end
 - » Shake down the shifts organization, on call procedures, data transfer
 - » Provide stable data for online analysis, noise studies, and offline pipelines
 - ◆ **Start in September** (2 week-ends in Sep. then all week-ends)
- Move to 24/7 Science data taking
 - ◆ When sensitivity improvements require too large changes
 - ◆ Expect to Improve the C7 sensitivity by one order of magnitude
 - ◆ Start by the end of the year (?)



Foreseen Virgo upgrades

- Short term

- ◆ Acoustic isolation
- ◆ Pre-Mode Cleaner
- ◆ Upgrade of the quadrant diode front-end electronics
- ◆ New coil drivers

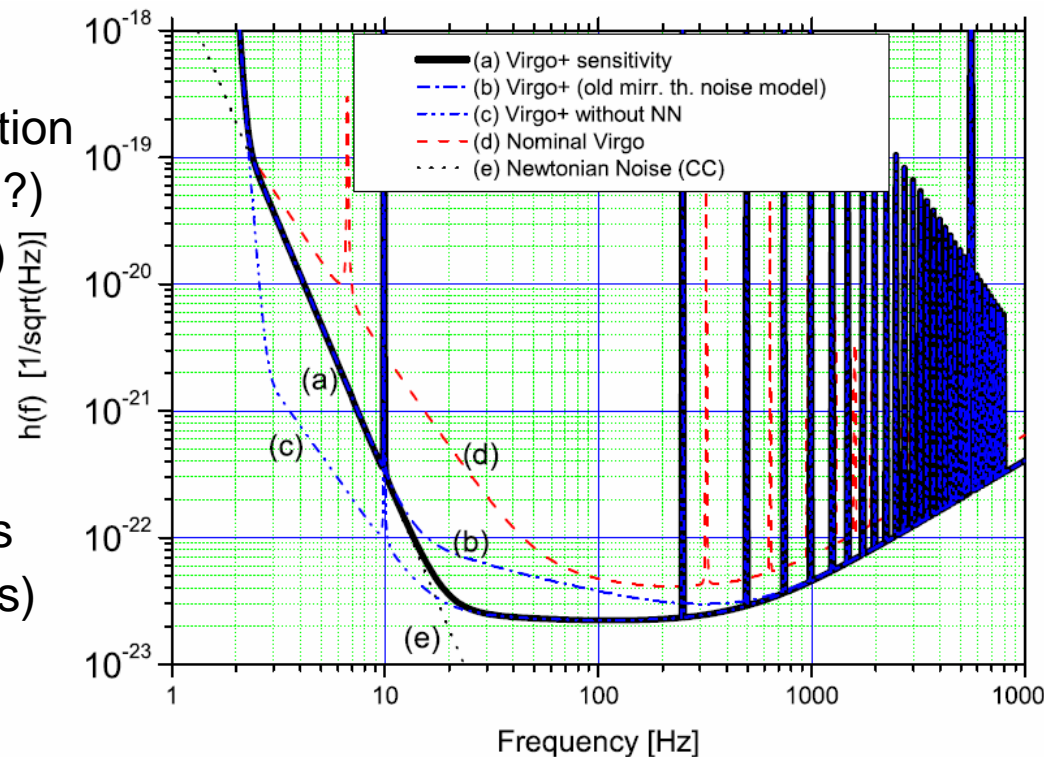
- Intermediate (2007)

- ◆ Eddy current dissipation mitigation
- ◆ Thermal compensation (Virgo+?)
- ◆ New DSP electronics (Virgo+?)
- ◆ New MC mirror (Virgo+?)

- Virgo+ upgrades (2008)

- ◆ High power laser amplifier
- ◆ New Control & DAQ electronics
- ◆ Monolithic payload (new mirrors)

- Advanced Virgo (2011)





Collaboration Organization

- 2 groups recently joined Virgo

- ◆ NIKHEF (Netherlands)
- ◆ Roma Tor Vergata

- Current composition:

| Group | Person | Student | Authors | FTEs |
|------------------|------------|-----------|------------|--------------|
| LAPP Annecy | 22 | 2 | 10 | 15,8 |
| Firenze/Urbino | 13 | 4 | 11 | 11,4 |
| LMA/ESPCI | 11 | 0 | 6 | 4,5 |
| Napoli | 17 | 4 | 14 | 9,8 |
| Nikhef | 7 | 1 | 0 | 3,8 |
| OCA-Nice | 13 | 1 | 13 | 7,8 |
| LAL Orsay | 9 | 1 | 9 | 8,0 |
| Perugia | 9 | 2 | 9 | 6,5 |
| Pisa | 26 | 9 | 23 | 21,9 |
| Roma 1 | 15 | 4 | 9 | 12,8 |
| Roma Tor Vergata | 8 | 1 | 0 | 4,2 |
| Total | 150 | 29 | 104 | 106,3 |
| EGO | 33 | 1 | 16 | 33,0 |
| Total | 183 | 30 | 120 | 139,3 |



LIGO-Virgo MOU: Virgo approval

- Content approved by the Virgo Steering Committee
- Asked our institutions to approve it
 - ◆ Institution(s) = EGO Council = CNRS+INFN representatives
- EGO council meeting: June 29-30
 - ◆ Like the MOU but not yet a formal answer
 - ◆ Pending issues:
 - » What Virgo means?
 - » How the funding agencies approve/endorse it?
 - » Should a “advisory/liaison” committee be added?
- Process slow down by the vacations...