- 09:15 → 09:30 High quality mirror coatings¶ Speaker: Laurent Pinard (IN2P3)

- 09:30 → 09:45 VMB at CERN¶ Speaker: Guido Zavattini (Universita e INFN, Ferrara (IT))
  Probably a question for A. Siemko: what is the maximum ramp rate of the LHC magnets. Can we ramo at a few 10 A/s as required to reach the mHz frequency? (G. Arduini)

Answer (Guido): This is clearly the critical question. I have been told that there are two different power supplies: 24V and one with 60V. It seems that this is the limit. I thought there would be problems with quenching but apparently not. Need experts here. If, though, the stability of the spurious signal is even better thant 0.1 mHz then a slower ramping could be used. For an LHC dipole L = 100 mH and the maximum current we would like is ≈ 13kA.

Answer (Andrzej): The LHC dipole magnets with a strong power supply can be easily ramped up and down with the dI/dt in the range of ~ 200A/s, but there is another limitation, namely, the heat induced (eddy currents, coupling currents, magnetization, etc.), which must be removed in the event of a longer period of ramping up and down. In practice, ~ 100A/s can be achieved relatively easily.

- 09:45 → 10:00 Structured Laser Beam and perspectives for large scale metrology¶ Speaker: Jean-Christophe Gayde (CERN)
  From Valentin Fedosseev: Very nice development! I have a couple of questions:
  - What is the fraction of input laser power is concentrated in the central part?
  - Can it be applied for high power laser beams?
  -

From G. Cantatore: I am curious about the generator. Do you manufacture it “in house”? Which software do you use to simulate beam propagation and calculate the reflecting/refracting surfaces?

(Miroslav Sulc) Yes, it was made at home from off-shelfs components. Software is VirtualLab.

(G. Cantatore) Thank you! I will come and visit you as soon as I can come back to CERN!

(Jean-Christophe Gayde) Simulation are also made in certain cases using a software Krystof developed

(JCh Gayde and Krystof Polak) What is the fraction of input … : It is not possible to answer directly. It depends on the focussing of the system and also the expansion ratio. The best result we have achieved in the simulations was 80%. - (VF: This is very promising!)

(JCh Gayde and Krystof Polak) Can it be applied for high power laser beams?... Yes it could a priori be. - (VF: Thanks! Perhaps we could discuss off-line whether it is suitable for ultra-short high intensity pulses)(JCG Sure)

- 10:00 → 10:15 Fabry-Perot and requirements for Gamma Factory¶ Speaker: Aurelien Martens (Université Paris-Saclay (FR))

- 10:15 → 10:30 Optical techniques for atom interferometry¶ Speaker: Guglielmo Maria Tino

- 10:30 → 10:45 Laser operation experience at CERN¶ Speaker: Valentine Fedosseev (CERN)

- 11:00 → 11:15 New coating and substrate materials for low thermal noise mirrors¶ Speaker: Marco Bazzan (Universita e INFN, Legnaro (IT))

- 11:15 → 11:30 Optical calibration of particle detectors¶ Speaker: Giovanni Cantatore (Universita e INFN Trieste (IT))

- 11:30 → 11:45 The dual wavelength Fabry-Perot regeneration cavity in ALPSII¶ Speaker: Hartmut Grote (Cardiff University)

  (Babette): do you expect issues from reflections off the magnet bore's walls? The bore is quite narrow and long, how much to worry about the tail of the gaussian? Experience gathered so far at 100m scale?

  (Hartmut) In deed, the bore aperture limits the amount of build-up or Finesse at some point, but at 120m the losses are still dominated by the mirrors themselves. Experience: Yes, the a cavity over the full 250m has been locked (without wall in the middle) fine. The finesse not at final value, but more optimizations to be done. Early stages.

  Reflections from the bore walls are hopefully no problem. What really matters is the clipping aperture at the beam tube ends.

  (Babette) thanks OK!

- 11:45 → 12:00 Optomechanics for dark sector searches, kinetic particle detection at CAST and beyond¶ Speaker: Marin Karuza (Universita e INFN Trieste (IT))

- 13:30 → 13:45 UK Central Laser Facility¶ Speaker: Dan Symes (STFC UKRI)

- 13:45 → 14:00 THz Lasers and Rydberg atoms¶ Speaker: Chloe Malbrunot
  (Babette:) Those photomixers do only omega1-omega2, and not for example a omega1+omega2 contamination?

(Chloé) In principle that’s correct. However the photomixers are too slow to respond to a omega1+omega2 frequency. Thus only the beat frequency (omega1-omega2) is emitted

- 14:00 → 14:15 Laboratory experience with cryogenic optics¶ Speaker: Paolo Piergentili (Univ. Camerino)

- 14:15 → 14:30 Frequency Scanning Interferometry for absolute measurements and its applications¶ Speaker: Mateusz Sosin (CERN)