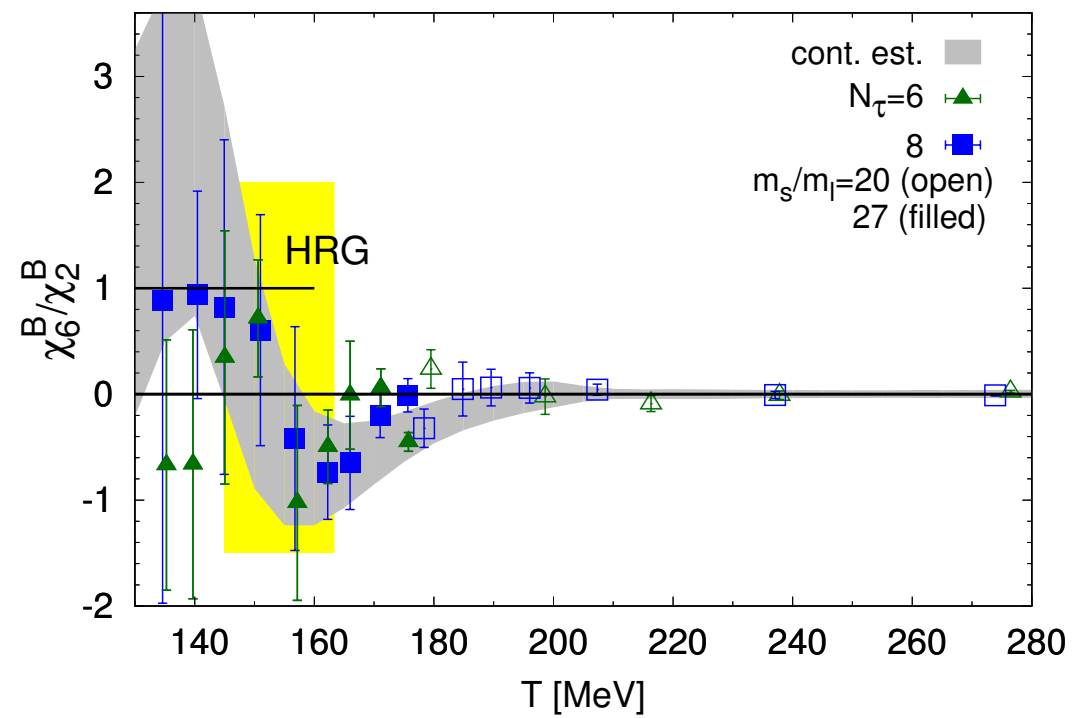
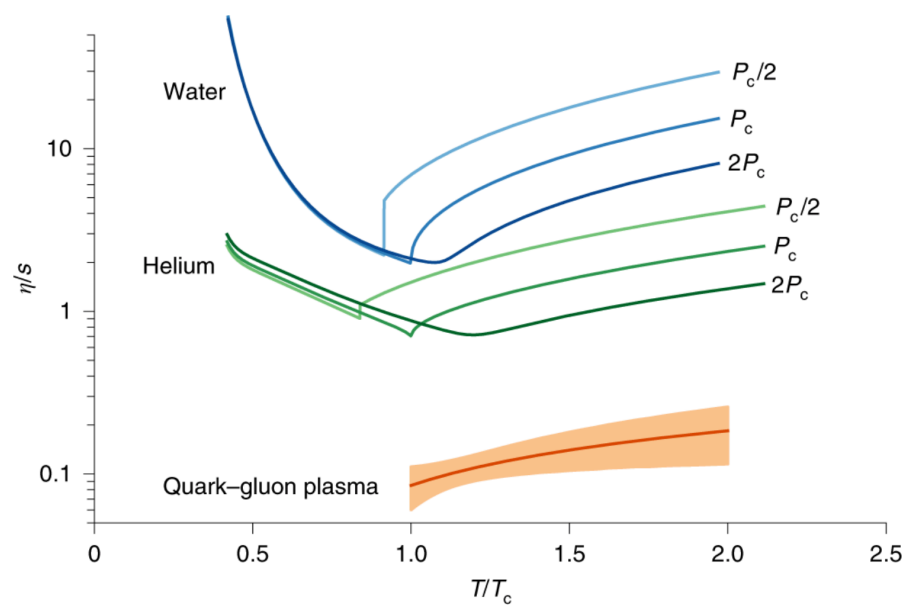


Fig. 1: Estimated temperature-dependent specific shear viscosity of the QGP compared with common fluids.

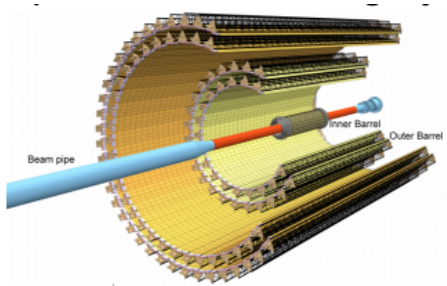
From: Bayesian estimation of the specific shear and bulk viscosity of quark-gluon plasma



Looking forward

Major upgrade during LS2

All pixel Inner Tracker System

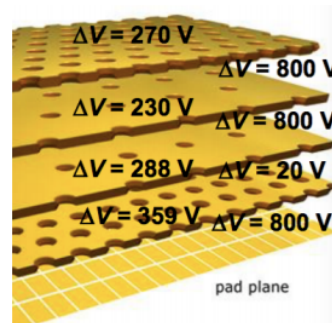


- Faster interaction trigger
- New online-offline system

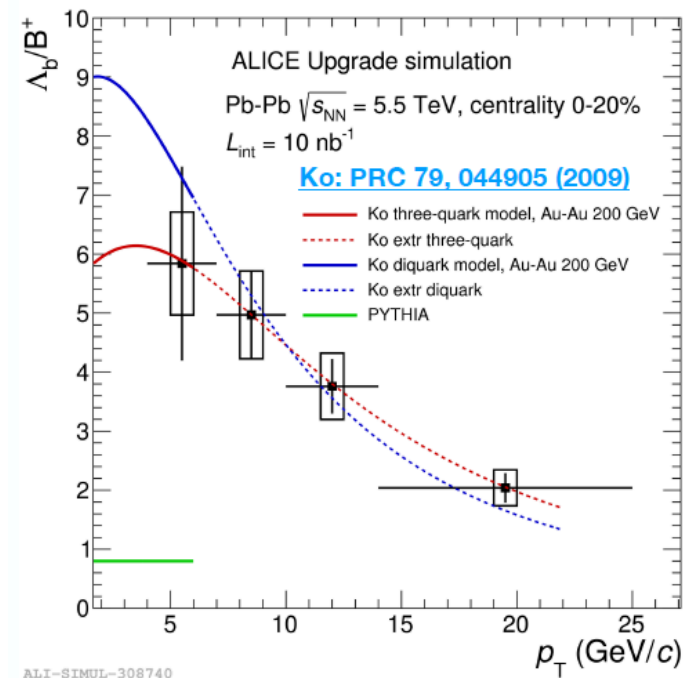
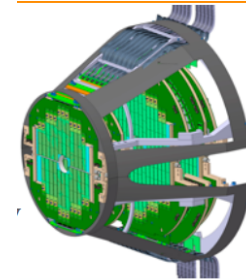
Run 3+4: x 100 higher statistics than Run 2

High precision measurements including beauty hadrons possible.

GEM based TPC readout



Pixel Muon Forward Tracker



CMS PHASE-2 UPGRADE FOR THE HL-LHC

LI Trigger/HLT/DAQ

- LI 40 MHz in/750 kHz out with tracking for PF-like
- HLT 7.5 kHz out

Beam Radiation and Luminosity, Common Systems, Infrastructure

Calorimeter Endcap

- Si, Scint + SiPM in Pb-W-SS
- 3D shower imaging with precise timing

Tracker

- Si Strip Outer Tracker designed for LI Track Trigger
- Pixelated Inner Tracker extends coverage to $|\eta| < 3.8$

Barrel Calorimeters

- ECAL single crystal granularity in LI Trigger with precise timing for $e\gamma$ at 30 GeV
- ECAL and HCAL new back-end electronics

Muon Systems

- DT & CSC new FE/BE readout
- New GEM/RPC $1.6 < |\eta| < 2.4$
- Extended coverage to $|\eta| < 2.8$

$|\eta| < 3.0$

MIP Timing Detector

- 30 ps resolution
- Barrel: Crystals + SiPMs
- Endcap: LGADs

