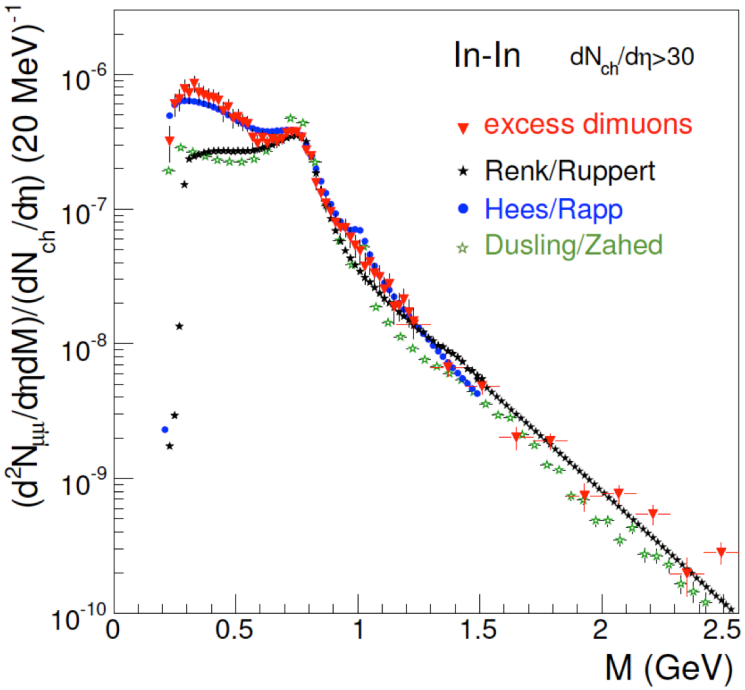
NA60 precise dimuon measurement

NA60, AIP. Conf. Proc. 1322 (2010) 1-10

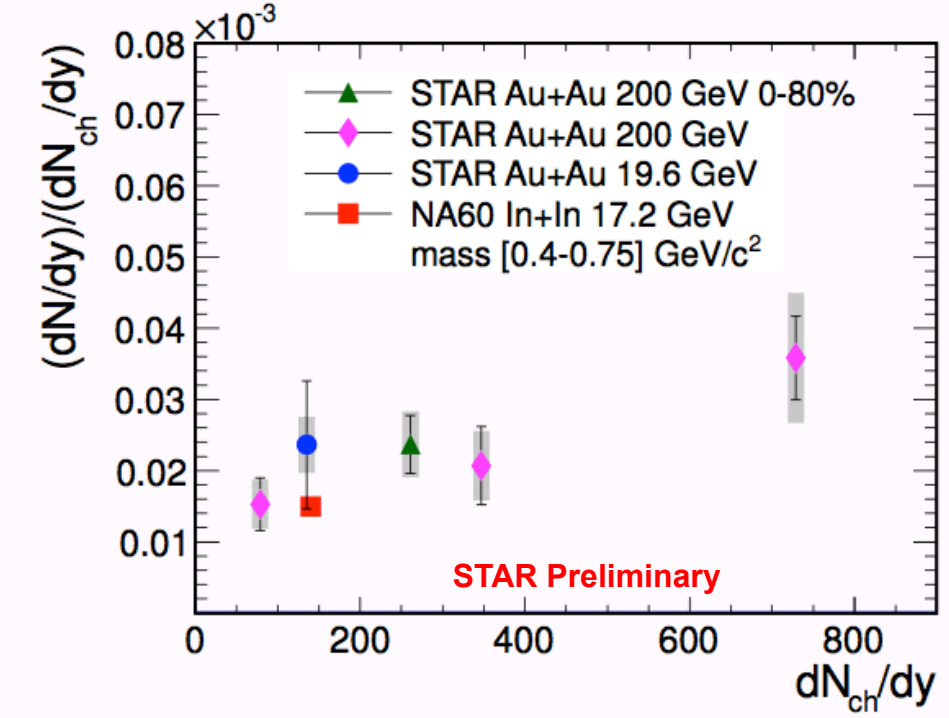


NA60 at 17.3 GeV: small charm correlation contribution, vertex detector to reject the charm background, no muon p_T cut.

Intermediate mass region: measure the temperature of hot, dense medium, determine whether mass spectrum can be smoothly matched with low-mass region. No structure in the mass spectrum would imply Chiral Symmetry Restoration.

RHIC energy scan: charm contribution varies when energy is changed, need measure and subtract charm contribution.

Normalized excess dilepton production



Intermediate-mass region: temperature of hot, dense medium

Low-mass region: life time of hot, dense medium

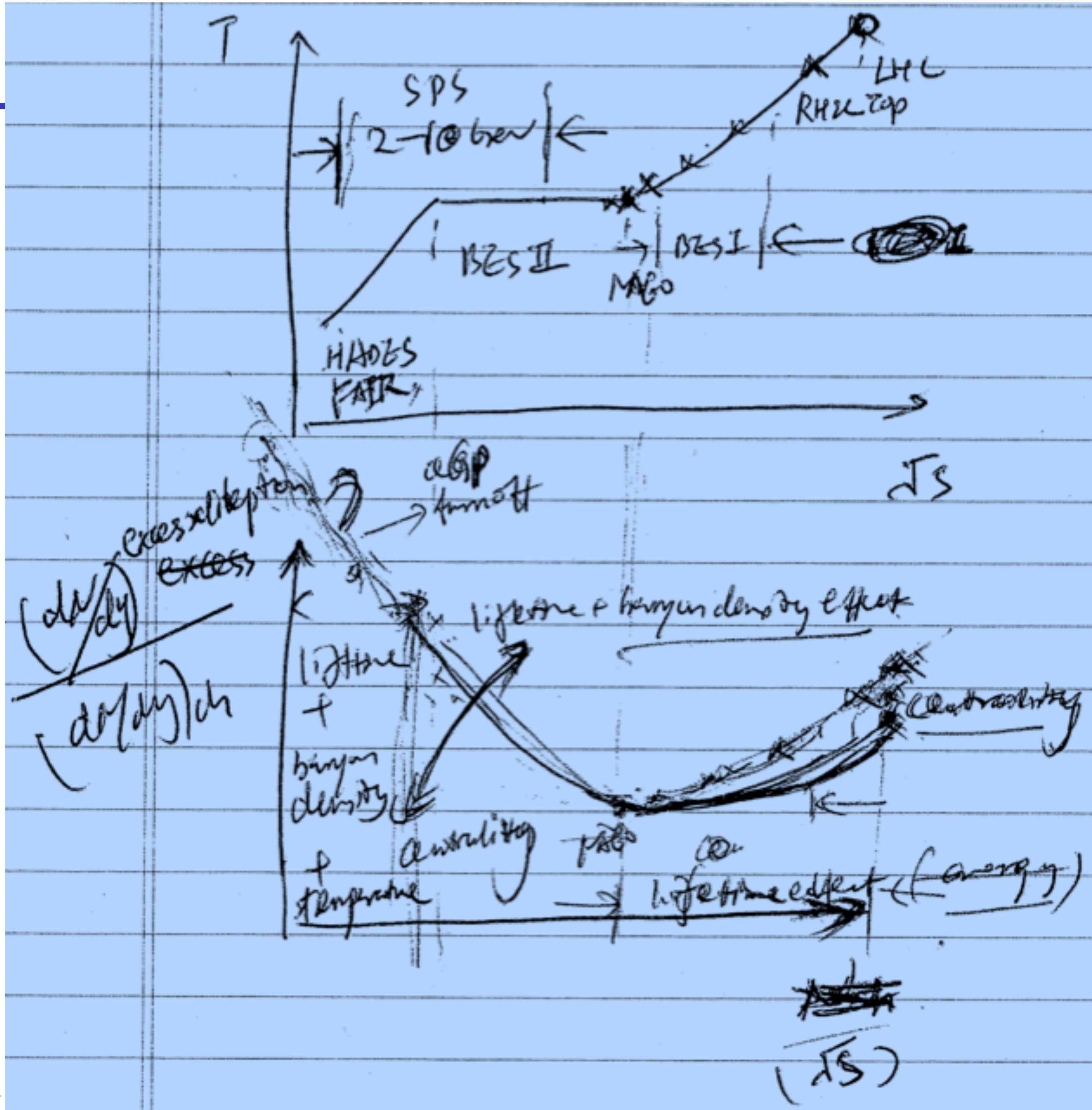
Long-range plan input

- **Established a theoretical frame work to describe the dilepton results across different energies successfully.**

- **Energy dependence of the excess dilepton spectral function at FAIR, SPS, RHIC and LHC (knobs: T, total baryon density, evolution of the system, …)**

  life time, and temperature of the medium versus energy

- **Establish the connection of the dilepton spectral function measurement to chiral symmetry restoration.**


T
SPS
LHC
RHIC top
BES II
BES I
HADES
FAIR
√s
lifetime + baryon density effect
lifetime
+
baryon
density
+
temperature
centrality
lifetime effect
(average)
(√s)