WG2

Input and Questions

Nuclear and Atomic Physics

Questions Submitted

- How do we cover the spectrum of GWs as best as possible?
  - Question about sensitivity? What sensitivity do we need for which accuracy?
  - Quantitative question… Modelling necessary
- Can GW solve the Hubble tension? What is the Eos of NS?
- Input at this workshop mainly on properties of dense matter.
- Strong overlap with WG1.

Ultrarelativistic Heavy Ion Collisions

- LHC and RHIC (talks by Antonio Vairo and Anton Andronic)
- Phase structure at low net-densities
  - Particle multiplicities, Correlations and fluctuations
- Hadronic interactions and resonance properties
  - Measurement of resonances, system size dependence, …

Somewhat Relativistic HIC

- RHIC BES, FAIR/GSI, FRIB, HIAF
- Phase structure at high baryon densities
  - Flow measurements
  - Fluctuations and correlations
  - Rare probes and hyperons
  - Electromagnetic probes
- Hadron interactions
  - Near and sub-threshold production
  - Light-Nuclei formation

- Strange matter in NS from Suprovo Ghosh

Low energy and nuclear structure

- Neutron star crust
  - Need for consistent transition from warm sub-saturation to dense and hot matter
- Nuclear synthesis, creation of elements in mergers
- Light curves -> composition of ejecta (multi messenger aspects)

- Talks by Guilherme Grams and Nina Kunert

Podium Discussion

- Input from HIC still active area of research – „known“ constraints may change in the future due to new experimental results
  - Need continuous exchange between communities
- Input from nuclear structure and atomic physics
  - Similarly how can more interaction be encouraged?
- General questions:
  - How can we get to a honest and realistic estimate of the systematic errors from:
  - EoS constraints from HIC
  - Nuclear structure calculations
  - BNSM simulations themselves
- Is there any “new” type of input from NP or AP which can help improving the GW predictions?