

# WG1 Conclusions

## Related to the web-based EoS repository starting from CompOSE

### PROVIDERS:

- Provide more **finite temperature** EoSs
- Provide **unified EoSs** (from the crust to the core)
- Provide **all possible microscopical quantities related to EoS**: nuclear matter properties, compositions, thermodynamic quantities, potentials, effective masses, superfluid gaps, transport coefficients (representation?), neutrino scattering..
- Show **how well the EoS reproduces the up-to-date astrophysical constraints**:  $\sim 2M_{\text{sun}}$ , tidal deformabilities, radii, ...
- Provide **brief information on the model**: degrees of freedom, interaction, ...
- (Phenomenological models) Provide the possibility of **changing the parameters** to see how the nuclear and astrophysical constraints change

### Need of a consistent treatment of EoS and transport properties (WG2)

## CompOSE:

- Provide (possibly) **conversion tools** to transform from CompOSE format to **STELLARCOLLAPSE** format (and vice versa)
- Provide **conversion** from nuclear physics **units** to most used astrophysical units
- Provide more **microscopic quantities related to EoS** (with help of providers)
- Provide tools to introduce **Phase Transition** (with help of providers)
- Provide a **comparison between the different models** regarding nuclear and astrophysical quantities as well as **brief information on the models**
- Provide **fits (when possible)** of the tabulated EoSs (functional form?)

**You can contact CompOSE developers for questions, suggestions, requests. Maybe a forum can be established.**

## **USERS:**

Communicate your needs to improve on the repository: quantities needed, precision needed,...

**Be explicit and clear on what you need!!**

## **Crust-core interface:**

- pasta phase and its transport properties
- angular momentum exchange between core and crust
- neutron vortices: continuous throughout the star?
- normal to superconducting matter transition: sharp features in the magnetic field

## **Glitch 'reservoir':**

- Vortex pinning strength on different lengthscales, still controversial
- Core superfluid must contribute to glitches:
  - needs core pinning mechanism (interaction to flux tubes?)
  - inner core composition (and its coupling to the rest of the star) matters