

# Key Questions

- Origin of elements
- Investigation of stellar reactions in the lab
- Fate of stars as a function of nuclear physics
- Properties of (dense) matter
- Limits of nuclear existence
- What observables are needed to direct nuclear activity
  
- How understanding of visible Universe shines a light on dark matter and dark energy

# Detailed deliverables

- Reactions under stellar plasma conditions (reactions on excited states, electron screening, ...)
- Heavy ion reactions (carbon, oxygen etc)
- (n,g) on s-process branch points (radioactive targets)
- Complete nova reaction rate measurements
- $\alpha$ -capture on heavy nuclei for p-nuclei
- Improved parameters for nuclear models
- Masses for rp-process

# Deliverables

- Sensitivity studies
- Explore new techniques

# Recommendations

- Coordination – setups, newsletter, research
- TNA – schemes?
- Beam time campaigns
- Sample production
- High precision measurements
- Build/finish ELI, FAIR, etc
- Keep existing tools running