- **Purpose & Goal:**
    - collect communities of observers, astronomy equipment people, theorists
    - help each other:
        - writing proposals for funding
        - improving exploitation of tools
        - work together
    - assess capabilities of all fields and instrumental perspectives
        - Truran: where do we place emphasis?
        - : not limit ourselves to specific fields

- **Fields**
- Radio:
    - Issues:
        - GBT - measures pulsar masses. threatened closure
            - Beers: need to show the immediate effects for nuclear astro. “open access, everyone loses”
        - how is mass ejected from novae? need better models
- Sub-mm:
    - used as star formation tracers
    - important for diagnostics of star formation, initial mass function
- Infrared:
    - probe through dust, MW from inner structure to outer
    - want large surveys for entire community
        - Beers: surveys are here. need to emphasize benefit of current surveys success, and understand them better. surveys won’t happen all at once
        - : what do we need to do to capitalize on existing surveys?
        - Beers: have data, need to test it.
- UV:
    - Issues:
        - HST
        - not a lot of new material recently
    - : important for getting low abundance atomic species.
    - : spectroscopic abundances are critical part for nuclear astro
- X-ray:
    - : discuss merits of relative bands to nuclear astro
    - missions:
        - chandra, nustar, swift
            - hope one of them is accomplished

    - study neutron stars with x-ray
    - Instruments:
        - Athena -
        - Loft - study dense matter
- MeV Gamma-ray:
- GeV Gamma-ray:
- TeV Gamma-ray:
- : for all gamma-rays, cosmic rays make own nucleosynthesis (happening in space). gamma-ray is another way to get timescales
- Meteorite:
    - : worry about source of money, funded not to study presolar grains.
- Astero-Seismology:
    - : relates to Li abundances, stellar masses, look at CNO isotopes, stellar mass and mixing processes
- Cosmic-ray:
- Neutrino:
    - recent novae seen extremely high energy emission. two classical novae detected
    - Experiments:
        - Borexino and snow
- Gravitational-Wave:
    - : mergers may be source of r-process, very relevant.

- **Discussion**
- : what would be modeling needs and issues to take advantage of?
- Keeks: take advantage of some that are relevant to nuclear astro as well.
- : assign priorities relevant to nuclear astro to all astronomy fields
- : any other near term budget issue that is more important than losing greenbank
- Beers: paper will not have any effect on greenbay closing
- : still, should have the argument in white paper. (some agreement within group)
- : measurement of 2 Msolar neutron star might use greenbank. we should make science connections to astronomy items
- Fields: how do they relate to nuclear astro? look at events powered by nuclear physics
- Beers: mistake to put all eggs in one basket ten years from now. there will be more modest facilities b/w then and now
- : what do we say? talk about two facility closures
- : things are under threat, but things are coming our way, also. what will be impact

from things we will have ten years from now?

- Keeks: is something coming that will drive theory?
- : shift in theory from 1D, isolated modeling to more broader. validating simulations in a broader sense
- Keeks: people working on building larger, broader
- : for general nucleosynthesis, do not have framework for large, broad simulations
- : what do you need from obs?
- : work b/w obs world and simulation world. put data into database similar to jina reaclib.
- : answer is networking activity b/w fields
- : grains are very important validation, also many more types. need new coordination where modelers and observers work together.
- : great time to start more collaboration, with recently completed surveys
- : importance of keeping facilities running so events can be measured when they occur
- : should be ready to measure rare (once in a lifetime) events
- : grains, uv, x-ray, low energy gamma-ray, stuff relevant to nuclear astro.
- : should provide more specifics, so we save some things instead of failing to save everything
- gbt + kitpeak > gemini ?
- object to regrettable losses
- gbt has made important contribution to compact star eos

- **Main Message**
    - need concert of different messengers, interfacing and networking to learn from each other and put implications of different models together, while keeping facilities that measure extremely rare events alive