

Moving forward from here...

Output of this workshop will be a “white paper”
(or conference summary?)

Journal?

Outline and a some starter text in Overleaf
... everyone here (and others who could not attend)
is welcome to contribute.

Please email me/Rafael/other SOC members
for edit access (“opt-in”)

We will be pestering many of you (“opt-in-encouraged”)

Comments also welcome

1	Introduction	3
2	Stellar Core Collapse Signals	3
2.1	Science from Core-Collapse Multimessenger Astronomy	3
2.2	Neutrinos from Supernovae	5
2.3	Gravitational Wave Signals from Core Collapse	5
2.4	Electromagnetic Signals	5
2.5	Other Transients	5
3	SNEWS 1.0	5
3.1	SNEWS 1.0 Configuration	5
4	SNEWS2.0	6
4.1	Lowering the Threshold	6
4.2	Latency	6
4.3	Optimizing Uptime	6
5	Pointing to the Supernova with Neutrinos	6
6	Presupernova Neutrinos	7
7	The SNEWS Alert and Followup	7
7.1	Real-Time Algorithmics	7
7.2	Multimessenger Follow-Up	7
7.3	Alert Broadcasting and Optimized Observing Strategies	7
7.4	Data Sharing	7
7.5	Walkthrough Example	7
8	Education and Public Outreach	7
8.1	Amateur Astronomers	7
9	Summary	7
10	Appendix: Supernova-Neutrino Sensitive Detectors	7
11	References	7

- where we are
- sensitivities for short (1-2 year) and longer (10-20 year) term...exactly how do we get more science by combining neutrino information?
- realistic timelines for work

We have a lot of work to do: working groups

Physics

- model databases & detector response
- focused on alert [connect to “SNARE”]

Pointing

- evaluate realistic sensitivities
- decide on strategy, staging

Presupernova

- evaluate realistic sensitivities
- decide on strategy, develop protocol

Nuts&Bolts

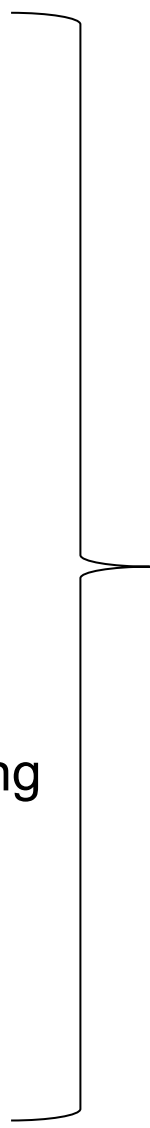
- write new code for data combination/processing
- use existing new infrastructure for alerts

Data sharing

- develop protocols/MOUs, ...

Education/Outreach

- amateur connection
- other outreach



short
and long
term
strategies
... eventually
SNEWS 2.1,
3.0, ...

Timescales for Next Steps

By end of summer:

white paper: realistic plan for the work
formation of working groups

~1 year: next meeting : in conjunction with Nu2020?
a formal collaboration with governance?

Yearly meetings

A separate, but connected initiative... has been dormant

SNARE (SuperNova Advance Readiness Exercise)

- theorists prepare model fluxes with physics/astrophysics “treasure” hidden inside (choice of MO, collective oscillations, SASI, assumed direction, etc.)
- experimentalists simulate signals in their detectors and analyze the data
- **can we find the treasure?**
- could include GW observatories



- Build on SNEWS and GWnu connections
- Could be ongoing series of events
- Mailing list <https://lists.phy.duke.edu/mailman/listinfo/snare> and Slack workspace snaresupernova.slack.com

(Acronym credit: Chuck, Clarence, Stan, KS)