

# Theory Interest Group

## Closing session

(v0.2)

IVOA interop April 29, 2022

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# Brainstorming session Goals

We want concrete proposals using at least two science platforms for analyzing/disseminating cosmological simulations

- *cosmological simulations*: Represent and evolve a volume in 3+1 dimensional space-time, whatever its spatial size
- We want to deploy data and software to the platforms and register their existence in a SimDB
- Need volunteers, providers of
  - Platform
  - Data
  - Software

# Discussion items

- Availability
- Platform types
- Capabilities
- Data
- Software
- Standardization

# Availability

- GL: SciServer (Virgo, Indra, ApogeeFire, more)
- Brian: CADC (if a Canadian university participates, or we can get approval from JJ)
- Simon: Data Central (EAGLE, SimSpin)
- Dave: Edinburgh (if related to a science project, maybe GAIA?)
- Erik: STScI (maybe on one of their platforms)
- Others feel free to volunteer

# Platform types

- Desktop, notebook, GUI?
- Most important: User centered
  - Maybe try to avoid forcing user to create docker images

# Capabilities

- Want to know what kinds of resources are available, also non-standard ones.
- Both data, compute and services
- For discovery, Dave's ExecPlanner could help

# Data

- Which simulations for these project?
  - Common, distinct?
  - Participating platforms have own interests, e.g. GAIA, simulations next to GAIA data set
- Special: simulations of interest to observers
  - Synthetic catalogues plus original data for tracing history of “observed” structures
- Would be good to understand more use cases
  - Charge to national VOs to contact their hinterland
  - In the mean time we will make some up, especially while trying to learn about platform interoperability

# Software

- Maybe minimal set of preinstalled libraries
  - yt, astropy, some c
  - Allow users to install their own
- Binder analogy:
  - “provide repo + requirements.txt”
- Reproducibility important(?)
  - Might argue for “docker” images



# Standardisation

- How to register simulations on a science platform?
  - **Paul** may be able to prototype a SimDB for us
  - Registry?
- What is interoperability for science platforms?
  - Same authentication
  - Common authorization (groups sufficient?)
  - Containers run everywhere
  - TBD

# Next steps

- Get together with volunteers before the summer for concrete plans
- Volunteers, get together with some of your local scientists and ask for their ideas, wishes, participation

Thanks for an interesting discussion!