

# NICER Project Response to NUG Report of July 2022

# Introduction

- The NICER project thanks the NUG for its Summer 2022 report.
- Specific responses concerning calibration/software and outreach appear on the following pages.

# Calibration and Software Remarks (1)

**NUG:** *The NUG was pleased to see the recent continued improvements of the Data Analysis Threads, but encourages continued improvements and revision to current threads and development of new ones. Making the threads more comprehensive and end-to-end (including assuming less knowledge of X-ray analysis) will be a big benefit ...*

**NICER Project:** The NICER team will indeed continue to create new analysis threads, including end-to-end threads and more guidance about what to look for in the data. The new high-level tools and background models in the recent NICERDAS release (on 15-Nov) come with a large amount of new documentation for these topics, with more in development.

**NUG:** *There is a lot of great information and walkthroughs that were presented at the April 2021 NICER workshop. One quick way to help users would be to time-stamp those videos so viewers can quickly jump to the relevant place, and then also linking to the workshop videos from the analysis threads, or alternatively creating a YouTube playlist with the most important threads.*

**NICER Project:** Unfortunately, NASA-wide communications policies forbid NICER from posting videos to YouTube or similar platforms. We do, however, have a concrete plan to self-host videos on the NICER website. The goal is to cover most analysis threads with at least one short video that walks viewers through the thread topic. These videos will have closed captioning and transcripts. So, rather than time-tagged long videos, we will break down the topics into separate short videos and place them on the appropriate thread pages. Here is an example video:

[https://heasarc.gsfc.nasa.gov/docs/nicer/analysis\\_threads/.testvid/](https://heasarc.gsfc.nasa.gov/docs/nicer/analysis_threads/.testvid/)

The project continues to engage NASA HQ on the issue of social-media content for scientists across all NASA projects.

# Calibration and Software Remarks (2)

**NUG:** *It might be helpful to describe the importance of the low-energy shelf of the response in the case of analyzing high NH sources.*

Generally speaking, the "shelf" (off-diagonal response due to partial charge collection) is not important and can be ignored for high nH sources. We will document the shelf as a detector feature when we publish guidance on detector and astrophysical artifacts.

# Outreach and DEIA (1)

**NUG:** *we recommend continuing to publicize how NICER can do much more than just neutron stars and X-ray binaries. The development of OHMAN can be used to draw in the broader transient community. Continuing to develop additional joint programs with other missions/telescopes is also a good route to widening the community.*

**NICER Project:** NICER has recently (for the just-completed General Observer Cycle 5 opportunity) joint programs with TESS and Swift, complementing the existing program NICER has had with NuSTAR. NICER is now working on an MOU with NRAO for a joint program with their radio telescopes.

**NUG:** *The NUG was pleased to hear of the upcoming NICER workshop that will have both hands-on analysis for novice users and highlight scientific results - the more results outside the fields of neutron stars and X-ray binaries that can be presented, the better.*

**NICER Project:** Response to the latest GO Cycle was very successful, generating the largest number of proposals ever received — a 27% increase over the previous cycle, and a 38% increase over the average of the prior 4 cycles. The proposal submission deadline followed the workshop by two weeks. The project gratefully thanks the organizing committee, led by George Younes, for this workshop, which attracted more than 300 registrants and a welcome diversity of science presentations (agenda and some slides are available [here](#)). Planning similar workshops ~2 weeks before future proposal deadlines seems like a good idea! Based on feedback received from workshop participants, future workshops will include more on the mechanics of proposal preparation and submission, as well as best practices for simulations that justify proposal requests.

# Outreach and DEIA (2)

**NUG:** *It would be helpful to have a significant presence at other big meetings too, for instance, having splinter sessions at AAS meetings, or organizing a session at the next COSPAR meeting in 2024 (the advantage of these options is that the logistics are handled by others and the team can focus on just the scientific organization).*

**NICER Project:** NICER is co-organizing a Special Session on black-hole science with NICER on all mass scales at the next HEAD meeting. NICER routinely has exhibit-hall presence at Winter AAS meetings, including Hyperwall presentations that attract significant attention. We continue to consider all opportunities for high-visibility special sessions at domestic and international conferences.

**NUG:** *Additional ways that could be used to promote NICER science results to the broader community include a more prominent social media presence, e.g., tweeting the ISS science nuggets, and getting features on websites such as [astrobites.org](http://astrobites.org).*

**NICER Project:** NASA's Communications office restricts how projects can use social media. NICER is working this issue with NASA HQ and organizing other NASA missions operated out of GSFC in this effort.

**NUG:** *The NUG had several suggestions for other actions that the NICER team could consider to enhance its DEIA efforts. For instance, having a DEIA statement on the NICER website; building up and keeping good demographic records (is it possible to gather demographics from proposal information?); sending representatives from the NICER team to the SACNAS and NSBP conferences; and providing funding for underrepresented researchers to attend workshops.*

**NICER Project:** The project will add a DEIA statement on the NICER HEASARC website that includes a link to [NASA's Strategic Plan for DEIA](#). NICER intends to send representatives and establish a presence, in coordination with other NASA activities, at annual SACNAS and NSBP meetings beginning in 2023. In collaboration with other GSFC Guest Observer Facilities, NICER is implementing a plan—approved as part of our Senior Review mission extension—for proactive outreach to underrepresented communities, to advance familiarity with proposal writing, observation planning, and data analysis.