

From the project office:

F. Harrison and Y. Kim

Launch Date Change. Due to scheduling conflicts with other missions, NASA HQ has changed the NuSTAR launch date to February 3, 2012. In Fall 2011, our previous launch window, the Mars Science Laboratory (MSL), the Juno New Frontiers mission to Jupiter, and the Gravity Recovery and Interior Laboratory (GRAIL) mission to the Moon are all scheduled to launch. All three have launch windows tightly constrained by celestial dynamics. By shifting the NuSTAR launch a few months, the Kennedy Space Center teams will be able to more reliably and safely support all of these NASA launches. NuSTAR's launch readiness date is set for November 15, 2011.

Mission and science payload update:

J. Willis and W. Craig

Optics. The NuSTAR optics are each composed of 133 concentric shells of grazing incidence mirrors. The glass for the optics are carefully shaped (at Goddard), coated with a custom multilayer recipe optimized for the NuSTAR bandpass (at DTU-Space in Copenhagen), and then painstakingly assembled (at Columbia). We will fly two optics modules, and will build a third for ground testing and calibrations. As of May 24, the first optics module has 87 shells fully assembled (Fig. 1) and will be completed in mid-July. The 2nd optics module will begin assembly on June 10th.

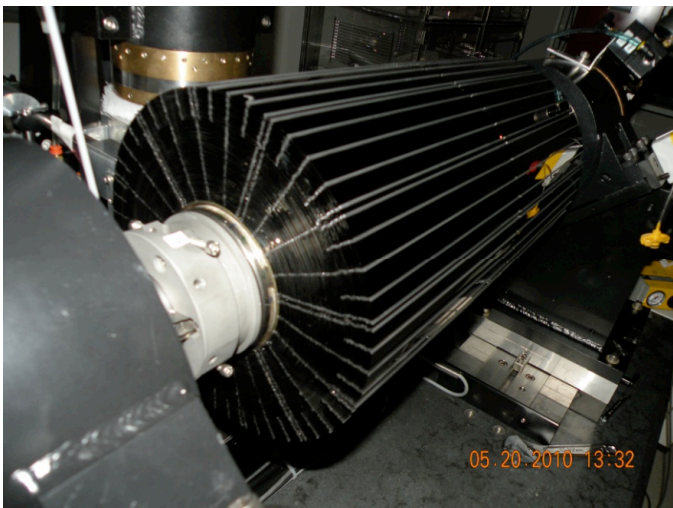


Fig. 1: Flight module #0 (FM0) at Columbia University's Nevis Laboratory. The layers are built out from the center on a lathe-like assembly machine, with graphite spacers (grey) separating the coated glass layers (black). In early May, FM0 switched from sextant glass layers to twelve-tant glass layers, with a corresponding increase in the number of spacers.

Focal Plane. NuSTAR will fly eight 32x32 pixel CdZnTe detectors, which are currently being selected from 50 procured arrays. The Application Specific Integrated Circuit (ASIC) die attach is complete for all detectors, and nearly 50% have completed the screening process. Many flight-acceptable arrays have been identified.

Spacecraft. The NuSTAR spacecraft is making good progress. The various components are being built, tested, and shipped to Orbital Space Corporation (OSC) in Dulles, Virginia for assembly and testing. The flight battery and reaction wheels were delivered earlier this Spring. The mechanical structure is complete and has completed its qualification testing. The torquer rods, magnetometer, and transceiver will ship in the next month. The solar arrays and star trackers are undergoing testing. The instrument and spacecraft will be integrated at OSC's facility beginning early in calendar year 2011.

Science update:

D. Stern and F. Harrison

Galactic and Extragalactic Science Workshops. Both the Galactic and Extragalactic Science Teams have begun bi-weekly telecons. The Extragalactic Science Team had a workshop in Pasadena in late 2009, and next month the Galactic Science Team will be meeting at McGill University in Montreal. The primary objective of the science teams currently is to finalize the observing plan for the two year baseline NuSTAR mission.

New additions. The primary data downlink for NuSTAR will be through the Malindi ground station in Kenya, which is operated by the Italian Space Agency (ASI). As part of this arrangement, several Italian scientists have recently been added to the NuSTAR science team. We are pleased to welcome Fabrizio Bocchino (Palermo), Sergio Colafrancesco (ASDC), Andrea Comastri (Bologna), Fabrizio Fiore (Roma), Paolo Giommi (ASI), Giorgio Matt (Roma), Silvano Moldendi (INAF Milano), Matteo Perri (ASDC), Simonetta Puccetti (ASDC), and Gionpiero Tagliaferri (Brera) to the project. In addition, we also welcome the following people who have been added to the science team since the last update: Marco Ajello (SLAC), Jerome Chaninev (DTU), Francois Dufour (McGill), Martin Elvis (CfA), Martin Van Kerkwijk (Toronto), and Julie Vogel (LLNL).

Kudos. Fiona Harrison, the NuSTAR Principal Investigator, received an honorary doctorate from the Danish Technical University (DTU) earlier this month. Present at the ceremony was Queen Margrethe II of Denmark. Also this month, Vicky Kaspi received the 2009 Prix Marie-Victorin for natural sciences and engineering, one of 11 Prix du Québec awards that are awarded annually. Finally, we are pleased to report that several members of the science team have had children since the last update: David Ballantyne had a baby in November, Ann Hornschemeier had a baby this Spring, and Frits Paerels had twins in May.