NICER GO Cycle 7 - List of Selected Proposals

Prop #	Title	PI Name	Abstract
8002	A NICER CATALOG OF ROTATION-POWERED PULSARS	PAUL RAY	NICER is a uniquely powerful instrument, optimized for characterizing pulsed X-ray emission from rotation-powered pulsars. There are about 50 spin powered pulsars that have been found to pulse in the X-ray band, of which about half have already been observed by NICER. We propose to increase the completeness of the NICER legacy dataset on rotation-powered pulsars by making observations of many of those that remain to be observed. This will provide a uniform database with detailed information on thermal and non-thermal emission through pulse profile studies vs energy, the geometry of the polar caps and magnetosphere through multiwavelength modeling with radio and gamma-ray data, and the efficiency of converting spindown energy into X-rays.
8005	PROMPT AND HIGH-CADENCE X-RAY FOLLOW-UP OF TRANSIENT MAGNETARS FOR UNDERSTANDING THE MAGNETAR-FRB CONNECTION	TERUAKI ENOTO	The phenomenon of Fast Radio Bursts (FRBs) is one of the most tantalizing mysteries in astronomy. However, the mechanism of how magnetars initiate FRBs is poorly understood. In October 2022, this magnetar exhibited FRBs and short X-ray bursts again. During this magnetar outburst, ToO observations and time series analyses with NICER and NuSTAR revealed a pair of glitches that occurred before and after FRBs, associated with a burst forest, providing valuable insights into this mystery. Hence, this proposal aims to prompt and high-cadence X-ray monitoring during an outburst of transient magnetars to investigate their X-ray behaviours and to search for glitches similar to those of SGR 1935+2154 and also for FRB-associated X-ray bursts.
8006	OBSERVING THE NEXT X-RAY BINARY - RADIO MILLISECOND PULSAR TRANSITION WITH NICER	SLAVKO BOGDANOV	Over the past decade, three millisecond pulsar binaries have been observed to switch between accreting and rotation-powered pulsar states, thereby unambiguously establishing the long suspected link between low-mass X-ray binaries and "recycled" pulsars. In the low-luminosity accreting state, they exhibit X-ray and optical variability unlike anything observed in other X-ray binaries. We propose a Target of Opportunity program to trigger a NICER observing campaign on the next nearby binary recycled pulsar transformation to an accretion disk dominated state. This will result in an improved understanding of the peculiar phenomenology of these systems, which, in turn, may shed light on the little-understood physics of the quiescent regime in NS X-ray binaries.

Prop #	Title	PI Name	Abstract
8012	TIMING THE EVOLUTION OF ULTRACOMPACT WHITE DWARF BINARIES	TOD STROHMAYER	Ultracompact white dwarf binaries are the most compact binary star systems known and can have orbital periods shorter than 5 minutes. Their evolution is influenced by the loss of angular momentum due to the emission of gravitational radiation, and they are highly anticipated targets for space-based gravitational wave detection with LISA. We propose to continue to monitor the soft X-ray pulsations from HM Cnc and V407 Vul, two ultracompact white dwarf binary systems. HM Cnc is the most compact binary star system presently known, and NICER monitoring has provided new insights into its binary evolution. Continued monitoring with NICER will enable detailed probes of binary evolution driven by gravitational radiation and direct impact accretion.
8023	TRACKING THE EVOLUTION OF CORONA IN A CHANGING LOOK AGN	SIBASISH LAHA	Changing look active galactic nuclei (CL-AGNs) show extreme variations in the optical, UV, and X-ray luminosity in timescales spanning months to years. It seems likely that CL-AGN events are driven by rapid and extreme changes in the accretion disk around the super-massive black hole (SMBH), which also affects the coronal emission causing large unexplained variations in 0.3-2 and 2-10 keV flux and spectral states. The CL-AGN are therefore ideal test beds to understand the properties of coronal X-ray emission, which is still poorly understood. This proposal aims at densely monitoring the X-ray emission from a CL-AGN in its initial phase of outburst to understand the coronal properties in CL-AGN.
8028	INVESTIGATING THE RADIO - X-RAY CONNECTION IN EXTREMELY VARIABLE EARLY-STAGE ACTIVE GALACTIC NUCLEI	EMILIA JARVELA	Recently, a subset of early-stage active galactic nuclei with extreme high radio frequency (37 GHz) variability was discovered. These sources, all narrow-line Seyfert 1 galaxies, exhibit variability with an amplitude of three to four orders of magnitude on a timescale of days. The origin of this behaviour is currently unknown, but there is preliminary evidence that the radio flares are connected to X-ray flares. We will use NICER ToO X-ray monitoring, triggered by a 37 GHz radio flare, to constrain the models proposed to explain the variability and to probe the apparent but unexpected high-frequency radio vs. X-ray association. The unique X-ray signatures of the models can be used to distinguish between them, possibly leading to a breakthrough in understanding these extraordinary sources.

Prop #	Title	PI Name	Abstract
8029	DAILY PRECISION SPECTRA OF MARKARIAN 421 FOR VARIABILITY AND MULTIWAVELENGTH STUDIES	DAVID WILLIAMS	Most blazars are studied only during large outbursts, in response to activity observed by monitoring instruments. This approach reveals little about the standard behavior of a source, which requires consistent, repeated observations over a period of time, independent of the variability or flux state of the target. Mrk 421 is the perfect candidate for such studies. Daily NICER observations can provide unprecedented data to probe the particle acceleration and photon emission processes in this iconic TeV-emitting HBL, both on their own and in the rich multiwavelength context provided by other observations. NICER's large effective area and quick repointing capability make it ideally suited to acquire high-quality spectra of Mrk 421 on a daily basis with a modest investment of observing time.
8030	IDENTIFICATION AND STUDY OF COSMOLOGICAL BLACK HOLES AS THEY TURN ON A RELATIVISTIC JET USING NICER MONITORING	DHEERAJ PASHAM	Following NICER's recent success in capturing the spectro-timing variability of the farthest tidal disruption event (TDE) to-date we propose ToO monitoring (10x250s per day for 10 days + 2ks per day for 20 days~65 ks) of a future relativistic TDE, i.e., a system with a newborn relativistic jet pointed directly along our line of sight. Our main goals are 1) to establish the relativistic nature of the future transient by measuring its luminosity and variability, and 2) combine NICER data with our approved multi-frequency radio data to perform multi-epoch spectral energy distribution modelings to shed light on the underlying jet physics. Our scientific goals require high-cadence monitoring for months and a large X-ray effective area making NICER the ideal facility for the proposed study.
8031	A LEGACY OF TURTLES IN NICER CYCLE 7: AMASSING A COMPREHENSIVE SPECTRAL-TIMING ARCHIVE OF OUTBURSTING BLACK HOLES	JAMES STEINER	Black holes in X-ray binary systems are among the brightest objects in the X-ray sky. Outbursting BHs in transient systems exhibit a characteristic Q- or turtle-shaped pattern when plotted on a hardness-intensity diagram. This pattern encodes a rich set of spectral-timing state transitions characteristic of a BH's outburst. This proposal aims to establish a legacy data archive of weekly NICER monitoring of these turtle-diagrams. Our proposed program fills in coverage gaps arising from proposals which serve more narrow scientific goals, and which often do not monitor the entirety of an outburst. We argue, on the basis of the ongoing impact of the RXTE BH data archive, that it is imperative to leverage NICER's high-throughput soft-X-ray sensitivity against the full outburst.

Prop #	Title	PI Name	Abstract
8032	A NICER VIEW OF BLACK HOLE X-RAY BINARY OUTBURSTS IN THE SOFT X-RAY BAND	JIACHEN JIANG	We request a monitoring program of one of six black hole transients with low Galactic reddening when in outburst, consisting of 20 observations each with 6 ks exposure. With our proposed observations, we will be able to study the inner accretion process during an outburst, such as the inner radius and the temperature of the disk. In particular, we will measure the inner disk density and compare the densities in different states. Previous tests for the high density disk model focused on sources with moderate Galactic column density. No soft X-ray observations without pile-up effects for our proposed transients are available in the archive. Our observations will be triggered by the MAXI and Swift-BAT monitoring program.
8047	FAST MULTI-WAVELENGTH VARIABILITY FROM A BH	THOMAS MACCARONE	We propose 5 observations of a black hole transient of 4 ksec each with NICER to be made simultaneously with ALMA and VLT fast-timing measurements in the mm and infrared. These data will be used to understand the evolution of the jet/X-ray cross-correlation function, the lags in which give fundamental information about the speed of the relativistic jets in these systems. NICER will allow high throughput and access both to the geometrically thin and geometrically thick spectral components in the accretion flow. By observing the evolution of this cross-correlation function we will be able to make the first observational study of the evolution of the jet speed in X-ray binaries.
8054	CATCHING X-RAY TRANSIENTS ON THE RISE WITH XB-NEWS AND NICER	JEROEN HOMAN	Observing campaigns of black hole and neutron star transients have long relied on triggers from X-ray all-sky monitors or wide-field cameras. However, due to the limited sensitivity of these instruments, the early rising phase of outbursts is typically missed. Here we propose a NICER monitoring program of known transient LMXBs that is triggered by detections of optical outburst activity with the Faulkes Telescopes/XB-NEWS. This allows us to catch transients as they emerge from quiescence in X-rays. With our program we aim to test the disk-instability model in LMXBs, follow the early X-ray spectral/variability evolution of an outburst, and search for extended absorbing structures. We request monitoring campaigns for two transients, each with daily 2 ks observations for 20 days.

Prop #	Title	PI Name	Abstract
8055	EXPLORING SOLAR-WIND DYNAMICS THROUGH COMETARY INTERACTIONS DURING SOLAR MAXIMUM: A COMPARATIVE STUDY OF C/2023 A3 (TSUC	DENNIS BODEWITS	We request 200 ks of NICER observing time to study the interaction between the solar wind and two bright comets, C/2023 A3 (Tsuchinshan-ATLAS) and P/2010 H2 (Vales). Utilizing NICER's agility and sensitivity, we aim to compare charge-exchange spectra arising from the comets interaction with varied solar-wind states. Simultaneous observations of both comets at distinct solar latitudes allow us to compare spectra from differing solar-wind conditions. This offers a unique opportunity to map the solar wind during solar maximum and explore charge-exchange reactions in astrophysical plasmas spanning a 0.1 10 MK temperature range. By comparing the cometary spectra we will investigate the source of unexplained emission features between 1-2 keV.
8057	IDENTIFYING NEWBORN COMPACT OBJECTS IN FAST, BLUE OPTICAL TRANSIENTS USING NICER'S UNPRECEDENTED TIMING CAPABILITY	DHEERAJ PASHAM	NICER has recently identified a ~224 Hz quasi-periodic oscillation (QPO) from the fast, blue optical transient (FBOT) AT2018cow. This has been interpreted as a signature of fallback accretion onto a new born compact object in a supernova. Following this success we are proposing for high-cadence monitoring observations of a new FBOT in cycle 7. Our main goals are to 1) identify a similar QPO in a future FBOT, 2) search for coherent pulsations, and 3) study the evolution of such a signal with time, dependence on source luminosity and multi-wavelength properties. Identifying more such systems has the potential to open up a new area of science of study of compact objects right at birth. The key to this program is high time resolution in X-rays and currently only NICER has such a capability.
8059	PROBING THE NUCLEAR TRANSIENT--NEUTRINO PARADIGM WITH NICER FOLLOW-UP OF ICECUBE GOLD ALERTS	DHEERAJ PASHAM	The astrophysical origin of the majority of IceCube observatory detected neutrinos remains unknown. Proposed counterparts to IceCube's TeV-PeV neutrinos include non-jetted nuclear transients, arising from supermassive black hole accretion. Yet, this hinges on spatial coincidence, vulnerable to IceCube's substantial localization errors. We propose X-ray follow-up of three nuclear transients coinciding with IceCube's GOLD alerts in cycle 7. Our objectives are: 1) assessing nuclear transients' neutrino associations by comparing energies under various theoretical models, and 2) unraveling the physics of feasible sources. Achieving this requires X-ray follow-up with a large area telescope like NICER, which has already demonstrated its success in ruling out a neutrino connection in AT2019dsg.

Prop #	Title	PI Name	Abstract
8061	RAPID X-RAY AND OPTICAL REVERBERATION MAPPING IN A BLACK HOLE TRANSIENT	ERIN KARA	NICER has enabled us to now regularly monitor the evolution of the spectra and time lags over different accretion states in BH XRBs to understand the dynamics of the accretion disk and corona. In just the few very brightest XRBs, NICER has been paired with fast optical/NIR photomotetry to probe the causal connection between the X-ray emitting region (closest to the black hole) with the large scale jet. However, until now, many of these studies have been limited to the very brightest outburst systems and in the most luminous states. We are commissioning a new high speed optical photometer for Magellan to expand these X-ray/optical studies beyond just the few very brightest systems. We propose 12 NICER observations of 5ks each to perform simultaneous X-ray/optical timing analysis.
8062	NICER FOLLOW-UP OF AN EXTREME EXTRAGALACTIC TRANSIENT	ERIN KARA	X-ray observations of extreme accretion episodes provide a unique probe of the physics of accretion onto black holes. Whether due to some unknown disc instability, a stellar tidal disruption event or an encounter with an orbiting low mass compact object, such events change the accretion flow over timescales of weeks to months. This provides us with an impulse of accretion after which we can monitor how the system responds, through the formation of a disc, corona, jet or massive outflow. NICER is ideally suited for X-ray follow-up because it has flexible scheduling, a large effective area, good spectral resolution and lack of pile-up. We request to follow-up one bright extreme nuclear transient event for 150~days every 3~days for 1.5~ks (for a total of 75ks).
8072	FOLLOWING THE DISK-JET-CORONA CONNECTION IN THE UNIQUE RADIO GALAXY 3C120	DANIEL WILKINS	3C120 is a unique broad-line radio galaxy. Alongside the vast jets launched by the supermassive black hole in its nucleus, 3C120 possesses a compact X-ray emitting corona that irradiates the inner disk. This provides a unique view of the inner regions around the black hole in which the jet is launched and the corona is formed. We propose weekly X-ray spectral monitoring of 3C120 over the course of a year using NICER to accompany an ongoing VLBI monitoring campaign. Long-timescale X-ray spectral monitoring of 3C120 will add to a legacy dataset that will allow variations in the jet (traced by radio emission) to be correlated with variations in the inner disk and corona (traced by the X-rays), providing important new insight into the mechanism by which jets are launched by black holes.

Prop #	Title	PI Name	Abstract
8079	THE OBSCURED STATE OF GRS 1915+105	JOSEPH NEILSEN	GRS 1915+105 is a black hole binary known for its unique variability, strong winds, jets, and BH spin. After 20+ years in outburst, NICER detected a huge change in this iconic source: the X-ray flux dropped by 100x! Spectra suggest a large obscuring shroud, but what is this obscuring gas? The "obscured" state is highly variable, with flares that reveal strong winds and highly-ionized absorption. We propose to study its long-term evolution with 35 weekly exposures of 2.7 ks in Cycle 7. NICER is the only mission capable of frequently monitoring this important new state. We also request a 25 ks NuSTAR ToO to constrain scattering and wind photoionziation. These observations will continue to grow a NICER legacy archive of obscured variability in GRS 1915+105.
8081	A FIRST LOOK AT THE X-RAY VARIABILITY DURING THE NEGATIVE MAGNETIC EXTREMUM OF THE BETA; CEP PULSATOR XI1 CMA	PRAGATI PRADHAN	Xi1cma, a beta Cep pulsator with the strongest surface magnetic field and a 30-year rotational period highest among magnetic B-type stars, uniquely shows pulsational modulation of 5 hrs in both X-ray and Halpha emission. During Cycle 7, Xi1cma will pass through its unobserved negative magnetic extremum. We request 42 ks of observation to explore its X-ray variability across pulsation cycles, as pulsations affect temperature and wind rates, causing X-ray fluctuations. We seek 3 runs, each with 7 visits lasting 2 ks, and will compare with previous XMM data during the positive extremum to examine field topology deviations. Our NICER data enhances ongoing multiwavelength study of this enigmatic star's physics.
8083	X-RAY VARIABILITY OF THE UNUSUAL WOLF-RAYET STAR WR6 WITH NICER	PRAGATI PRADHAN	WR 6 exhibits modulation attributed to either binary nature or evolving co-rotating interaction regions (CIRs), and the proposal aims to disentangle the cause. Since CIRs have slower shock velocities (100 km/s) than binary accretion (1000 km/s), the former will result in a softer spectrum, that can be confirmed with NICER spectral analysis. Also, in the CIR scenario, softer X-rays probing the outer layers should be more homogeneous than harder X-rays that look deeper into the CIRs: that can be tested with the variability of energy-resolved lightcurves. To facilitate near optical observations of WR 6, we request 3 monitoring runs, each 2 wks, with one run having high cadence (~every 4 ISS orbit) and others daily. Each visit should is 2 ks, totaling 168 ks.

Prop #	Title	PI Name	Abstract
8084	CAPTURING QUASI-PERIODIC OUTFLOWS FOLLOWING A FUTURE OUTBURST FROM AN EXTRAGALACTIC NUCLEUS	DHEERAJ PASHAM	NICER has recently identified a new cosmic phenomenon called quasi-periodic outflows repeating once every 8.5 days from an extragalactic nucleus. Their physical origin is unclear but a scenario where a gravitationally bound object repeatedly punches through the accretion disk and pushes material towards the magnetic poles to launch an outflow is able to explain all the observed properties. Motivated by this discovery, we propose NICER monitoring of a future extragalactic nuclear outburst with an outflow. Our primary goal is to expand on the pilot study and understand the frequency of such events. A large collecting area, good spectral resolution and the ability to monitor for months is necessary to achieve our science goals making NICER the only facility that can conduct this study.
8085	A FIRST LOOK AT COLLIDING WIND BINARY WR 133 WITH NICER.	PRAGATI PRADHAN	Only two WR colliding wind systems with precise visual orbits have been well-studied with NICER, both involving WC stars. We request 80 ks (40 visits, each 2 ks) to conduct the first mapping of X-ray emission vs. binary phase for the visual binary WR 133 (WN5o + O9), containing a WN companion. This will provide a comparable X-ray dataset for a WN star in a colliding wind system. Our observations will map X-ray emission by orbital phase, model 1/D variations (D is the separation between the stars), and analyze plasma temperatures, absorption variability, and X-ray production relative to mass-loss rates. We will compare these findings to other systems, like γ2 Vel and WR140, with different Wolf-Rayet types.
8086	INVESTIGATING THE CIRCUM-BINARY ENVIRONMENT OF IGR J16320-4751 THROUGH X-RAY TOMOGRAPHY	PRAGATI PRADHAN	We propose a 54 ks NICER monitoring campaign to observe the highly absorbed HMXB IGR J16320-4751 (Porb ~ 9 days, Pspin ~ 1300 s), with daily 2 ks observations over three consecutive orbits (2 ks/day 9 days 3 orbits = 54 ks). Previous reports indicate pulse dropouts and short flares (~100 s) unrelated to absorption changes, suggesting shifts in the accretion regime. By measuring Fe K-alpha line variations and NH across orbits, we aim to distinguish between X-ray variability due to clumpy absorption versus accretion rate changes, offering insights into the massive star s stellar wind and neutron star accretion physics. Multiple orbits will also help detect phase-locked structures, such as accretion streams or wakes.

Prop #	Title	PI Name	Abstract
8087	JOINT NICER AND SWIFT (X-RAY+UV) MONITORING OF A FUTURE STELLAR TIDAL DISRUPTION EVENT	DHEERAJ PASHAM	We propose joint NICER and Swift (X-ray + UV) ToO monitoring observations of a future non-jetted stellar tidal disruption event (TDE). Our main goals are 1) to identify and study accretion states, transitions and accompanying corona formation around a supermassive black hole (SMBH) in a TDE. This is motivated by NICER+Swift's recent success in doing so for the TDE AT2018fyk. 2) To measure the precession period of a newly formed accretion disk in soft X-rays to constrain the SMBH spin. This is again motivated by NICER's detection of a 15 d quasi-periodicity in TDE AT2020ocn which constrained the spin parameter to be between 0.05-0.5. Our goals require both X-ray and UV data, monitoring capability and a large soft X-ray effective area making NICER+Swift the ideal combination for this study.
8088	A SOFT X-RAY SURVEY OF POLARS WITH NICER	KAYA MORI	Polars are cataclysmic variables with strong white dwarf (WD) magnetic fields that inhibit the formation of accretion disks. Two puzzling observational properties - the presence of soft X-ray blackbody emission in some polars and the absence of QPOs - have challenged our fundamental understanding of plasma instabilities in magnetically-confined radiative cooling accretion flows over three decades. NICER ToO observations of 15 polars in their X-ray bright states, through monitoring 45 targets with Einstein Probe, aim to provide the most sensitive probe yet of blobby accretion flows and long-sought X-ray QPOs predicted by recent theoretical models and simulations. These NICER observations will also complement the ongoing NuSTAR hard X-ray survey of polars by improving WD mass measurements.
8089	A LONG LOOK AT THE HARD STATE OF LMC X-3 WITH NICER	JAMES STEINER	LMC X-3 is a persistently active black-hole X-ray binary whose behavior more resembles transient BHs than the other persistent black holes. LMC X-3 is nearly always in a disk-dominated soft state, but infrequently will enter a hard state. Crucially, the line-of-sight absorption to LMC X-3, 4e20/cm^2, is an order of magnitude (or more) lower than other Galactic black-hole X-ray binaries. This uniquely low-absorption column allows for an unobscured view of the hard-state's thermal disk, which is key to determining whether the accretion disk extends to the ISCO or is truncated at larger radii in hard states. We propose a 30ks observation of LMC X-3 to be triggered upon the detection of a hard state in LMC X-3.

Prop #	Title	PI Name	Abstract
8094	A NICER VIEW OF THE RADIATIVE LOSSES IN THE HIGH-MASS GAMMA-RAY BINARY LS 5039	JOEL COLEY	We propose to observe the Gamma-ray binary LS 5039 with NICER and TESS during TESS Sector 91-92 timeframe. Consisting of a massive O6.5 V(f) star and a compact object of unknown type orbiting their center of mass, LS 5039 shows repeatable variations on timescales of years, that may be linked to the stochastic wind of the O6.5 V(f) star. Our goal is to discriminate between the synchrotron or inverse-Compton losses driving the cycle-to-cycle changes in the IBS using a discrete cross-correlation analysis. Thanks to NICER's large effective area, excellent timing resolution and agile schedule as well as TESS's two
8095	X-RAY LUMINOUS SYMBIOTICS	MARINA ORIO	The low column density towards the Small Magellanic Cloud allows to observe many supersoft X-ray sources, including the "softest" ones. The targets of this proposal are two symbiotic stars, each hosting a red giant and an accreting white dwarf. The white dwarfs in these systems appear to be undergoing steady hydrogen burning, without nova outbursts, implying a very high mass accretion rate - indicative, perhaps, of thermonuclear supernovae progenitors. NICER monitoring will reveal whether the burning is periodically interrupted and throw light on the cause of the observed dimming and brightening in X-rays, which recur at about (but not exactly) the same orbital phase. Short period QPO modulations may also be measured at different stages. New data will significantly constrain the models.
8098	MONITORING MAGNETARS WITH NICER	GEORGE YOUNES	Magnetars are young highly-magnetized isolated neutron stars with bright X-ray emission. The decay of their magnetic fields fuels their high energy radiation. Here, we propose a yearly monitoring program of six magnetars to establish their spectral and timing properties. Such a campaign will discover new spin-up and spin-down glitches, reveal their relative strengths and recovery times, and uncover new outburst and bursting epochs. Such observational results are crucial to guide the development of the crust theory in the regime of super-strong B-fields, and its link to magnetospheric physics which dictate the connection between all of the above phenomena. It is also the only mean by which we build up an unbiased sample of glitches therby moving towards a population level investigation.

Prop #	Title	PI Name	Abstract
8110	CATCHING A NEW MAGNETAR OUTBURST WITH NICER AND NUSTAR	ALICE BORGHESE	Isolated neutron stars powered by the instabilities and decay of their huge magnetic field, magnetars are characterized by a distinctive high-energy flaring phenomenology: short bursts of X-/gamma-rays, often accompanied by enhancements of the persistent X-ray luminosity, referred to as outbursts. Magnetar-like activity was discovered from isolated neutron stars with a broad range of magnetic field strengths. Moreover, the recent detection of a FRB-like burst from a Galactic magnetar has strengthened the belief that at least a sub-group of FRBs can be powered by magnetars. Here, we propose to follow two new magnetar-like outbursts from a known or a new source with NICER and NuSTAR to gather new physical insights on magnetar surface, field configuration and magnetosphere.
8111	A HUNT FOR SOFT QPOS IN NS LMXB GX 3+1	MALU SUDHA	A recent NICER study of the neutron star (NS) low-mass X-ray binary (LMXB) Cyg X-2 discovered low energy (0.5 3 keV) quasi-periodic oscillations (QPOs) that were not detected at higher energies with NuSTAR. We are proposing a follow-up study of a similar source, GX 3+1, to search for low energy QPOs with 40 ks of NICER observations jointly with 20 ks of NuSTAR data to elucidate the nature of the QPOs and the corresponding accretion disk geometry and lead the way towards a unified explanation for the behavior of NS LMXBs. A Fourier frequency resolved spectro-temporal study can lead to results that can provide us with a better knowledge of the association between the timing features (QPOs) and the overall accretion disk-corona and BL geometry.
8113	SCRUTINIZING THE NEXT OUTBURST OF IGR J00291+5934	TOD STROHMAYER	We propose a target of opportunity observing campaign with NICER of the next outburst from IGR J00291+5934 should it occur during cycle 7. We request 150 ks of observing time, which will allow us to sample the full outburst evolution of this transient object at high cadence. With these data, we will be able to obtain precise measurements of the current spin rate and binary ephemeris, and place tight constraints on the long-term evolution of this binary. Additionally, we will be able to characterize the spectro-temporal variability in the soft band, and investigate the still poorly-understood coupling between the variable accretion flow and the coherent pulsations.

Prop #	Title	PI Name	Abstract
8117	EXPLORING THE ORIGINS OF NEARBY REPEATING FAST RADIO BURST SOURCES WITH NICER	AARON PEARLMAN	Fast radio bursts (FRBs) are extragalactic radio flashes of unknown origin. We propose to carry out a high time resolution search for X-ray emission from nearby repeating FRB sources using simultaneous X-ray/radio observations with NICER and the Effelsberg, GBT, and CHIME radio telescopes. The activity of our targets will be monitored in the 400-800 MHz band with CHIME, and simultaneous X-ray/radio observations will be coordinated when our targets display a radio outburst. We propose for a total of 100 ks of ToO observations to observe up to 5 nearby repeating FRBs soon after radio activity is detected. These observations will be used to search for prompt and persistent X-ray emission from FRBs. The results will significantly constrain the origins of multiple FRB sources.
8118	A NICER VIEW OF THE MULTI-MESSENGER AND MULTI-WAVELENGTH EMISSION FROM AGN	ABHISHEK DESAI	Active Galactic Nuclei (AGN) are primary candidates to explain the neutrino emission observed by IceCube, the exact nature of this production uncertain along with the source class of AGN responsible. This is seen by the flaring study of the blazar TXS 0506+056 and the time-integrated study of the Seyfert NGC 1068. By leveraging multi-messenger astronomy, we can better understand neutrino production in AGN. We propose monitoring two AGNs: CGCG 420-015 (Seyfert) and PKS 1424+240 (blazar), using NICER and NuSTAR to study the X-ray-neutrino connection. This study will use both model-dependent and independent approaches with time-dependent X-ray and non-public IceCube data. The proposed monitoring campaign will also serve as a trigger for any possible real-time follow-up using IceCube.
8121	OBSERVING EXO 0748-676 ECLIPSES WITH NICER	MICHAEL WOLFF	We propose to observe multiple sets of full X-ray eclipses from the newly re-activated LMXB EXO 0748-676. EXO 0748-676 has returned to activity after a 15-year epoch of X-ray inactivity, providing a unique opportunity to time the orbit of an compact LMXB orbit (Period=3.72 hours) and watch as it evolves. The processes that cause the orbit to change over time are not fully identified for these types of systems and these observations will allow timing of orbital period changes to within milliseconds.

Prop #	Title	PI Name	Abstract
8127	MONITORING THE NEXT OUTBURST OF IGR J17480 2446 (TERZAN 5 X 2): A LAB FOR STUDYING THERMONUCLEAR BURNING REGIMES	GIULIO MANCUSO	During its first and only outburst in 2010, the 11 Hz accreting pulsar IGR J17480-2446 became one of the most prolific X-ray bursters known to date, showing all type of bursting regimes, in qualitative agreement with theoretical models of thermonuclear burning, but showing also substantial deviations from them. Here we propose 240 ksec ToO observations to monitor the next outburst of the source. These observations will allow us to study, among others, the interaction between the accretion disk and the flux coming from the X-ray bursts; the spin-up evolution of the NS as a function of the accretion rate and the connection between the accretion rate and the marginally stable burning.
8130	LATE TIME OUTBURST DECAY OF THE RADIO-LOUD MAGNETAR XTE J1810-197	GEORGE YOUNES	XTE J1810-197 is the first discovered radio-loud magnetar. It underwent its second outburst at the end of 2018 when its soft X-ray flux increased by over 2 orders of magnitude driven by the appearance of new hot spots on the surface. Four years later, the source has not yet reached quiescence, showing a hard X-ray flux that is a factor 2 larger. Moreover, the source pulsed fraction and pulse time-of-arrival has shown remarkable variability in the past 5.5 years. We propose 2, 30 ks observations of this historic source to follow-up its very late-time spectral and temporal properties as it decays back to quiescence.
8138	PROBING X-RAY QPOS, A STELLAR MASS ORBITER, AND THE CORONA-JET CONNECTION IN THE ENIGMATIC AGN 1ES 1927+654	MEGAN MASTERSON	1ES 1927+654 defies what we thought possible for accretion onto black holes. In 2018, the source began a major outburst, becoming the first changing-look AGN caught in real time. 1ES 1927+654 exhibited extreme X-ray spectral variability during the outburst, including the destruction of the X-ray corona. Despite rebuilding its corona and returning to its pre-outburst X-ray state by 2021, this unique AGN began showing a rapidly-evolving mHz X-ray QPO and recently launched a radio jet. We propose a one year monitoring campaign with two 1 ks NICER observations per week (totaling 104 ks) to track the long-term evolution of the new mHz QPO, connect the QPO to the evolution of the X-ray corona, and search for sudden outbursts as the QPO evolves to the ISCO in this NICER legacy target.

Prop #	Title	PI Name	Abstract
8141	A SYSTEMATIC SEARCH FOR QUASI-PERIODIC ERUPTIONS IN THE AFTERMATH OF TIDAL DISRUPTION EVENTS	MURYEL GUOLO	The recent discovery of X-ray quasi-periodic eruptions (QPEs) from the tidal disruption event (TDE) AT2019qiz 4 years after disruption opens a new window for the search for QPEs that do not rely on wide-field all-sky X-ray surveys. Instead is based on a high-cadence follow-up campaign on optical TDE at their late-times (> 1 year). With its flexible scheduling and high soft X-ray sensitivity, NICER is ideally suited for this task. This proposal aims to conduct a 5-day, high-cadence (3-hour intervals) follow-up on 35 TDEs discovered by the Zwicky Transient Facility between 2018 and December 2023. Our objectives are (i) to discover new QPE sources, (ii) to estimate the fraction of TDEs accompanied by QPEs, and determine the QPE volumetric rate.
8143	A MULTI-WAVELENGTH, MULTI-DIMENSIONAL VIEW OF THE ACCRETION WIND IN GRS 1915+105	YUEXIN ZHANG	We propose a 40-ks NICER ToO of the black hole X-ray binary GRS 1915+105 in the soft stat with simultaneous radio and supporting X-ray polarimetric observations. Our observations will enable a study of the properties of the wind, and how its jet reacts via VLA observations. Crucially, these observations will be with an approved trigger with the Imaging X-ray Polarimetry Explorer. Current NICER archival data capturing disk winds in GRS 1915+105 has no accompanying X-ray polarimetric data. Our multi-wavelength program will provide key view at the disk geometry, and its affect on the outflows. Finally we will precisely reveal the role of the wind launching region, conneecting wind mechanisms to the inner disk geometry, and to radiative properties revealed by accretion and ejection.
8144	COORDINATED X-RAY AND RADIO OBSERVATIONS OF DELAYED TIDAL DISRUPTION EVENTS	EHUD BEHAR	The physical mechanism behind the broadband emission from TDEs is poorly understood. In particular, simultaneous X-ray and radio campaigns are largely missing, although emission by hot electrons is common to both wavebands. TDEs can re-brighten in X-rays and radio more than 100 d after the optical decline. This delayed emission could be associated with the formation of an accretion disk corona, a jet, an outflow, or with shocks therein. Building on successful examples from the past year, we ask to trigger NICER once a late radio flare is detected in our radio monitoring program. We will then monitor the flux and spectra of two of these TDEs with NICER and the JVLA. This coordinated campaign will provide key physical insight into the X-ray-radio connection in late TDEs.

Prop #	Title	PI Name	Abstract
8149	TRACKING TWO FUTURE BLACK HOLE OUTBURST WITH NICER AND NUSTAR	PAUL DRAGHIS	The distribution of spins across stellar mass black holes (BHs) is currently not well understood. While a single observation of a system is enough to obtain a spin measurement, tracking the evolution of BH outbursts enables tests of the time evolution of the coronal properties, disk geometry, and density in order to solidify the robustness of spin measurements. We propose monitoring two future, new black hole binary outbursts through 20 NICER observations and one NuSTAR observation each. This project will not only expand the sample size of the BHs with measured spins, but it will also provide definitive information on the effects of the changes that the system undergoes during an outburst on our ability to precisely measure BH spin.
8152	PROBING THE X-RAY VARIABILITY OF BLACK HOLE X-RAY BINARIES IN THE HARD STATE AT DIFFERENT ACCRETION RATES	NIEK BOLLEMEIJER	Black hole X-ray binaries start and end their outbursts in hard states. Despite the over an order of magnitude lower luminosity in the final dim hard state than in the initial bright hard state, their spectra are very similar, dominated by emission from the corona. However, there is evidence that the variability in both hard states is different, which is not well-understood. Currently, no NICER data set fully contains both the hard-to-soft and soft-to-hard transitions, limiting our understanding of the dependence of spectral-timing phenomena such as lags and QPOs on accretion rate. We propose to monitor any bright BHXRB during the hard states and their transitions for a total of 100 ks, shedding new light on the origin of variability properties and on the nature of the corona itself.
8153	RESOLVING THE AGN BOLOMETRIC EMISSION WITH NICER AND HST	MICHAEL KOSS	Nearby powerful AGN provide critical insights into the growth of black holes and their impact on host galaxies. The Swift-BAT survey offers the largest, most complete sample of local (z<0.1) powerful AGN. Major HST SNAP programs (>500 orbits) are observing 191 nearby Seyfert 1 AGN from this sample across UV (225W) and optical bands (G435W and 814W), delivering high spatial resolution AGN PSF measurements (~50 pc). To fully understand the accretion mechanisms of these AGN, we propose 2 ks NICER followup of the ~39 AGN/year observed with HST. This will provide simultaneous high-quality soft X-ray observations (<2 keV), which are essential for constraining the blue end of accretion disk models and will offer unprecedented insights into the accretion processes of nearby luminous AGN.

Prop #	Title	PI Name	Abstract
8154	MONITORING THE 4-DAY QUASI-PERIODIC ERUPTIONS IN ZTF19ACNSKYY	JOHEEN CHAKRABORTY	Quasi-Periodic Eruptions (QPEs) were recently discovered in the optical transient ZTF19acnskyy. They have durations of 1.5 days and recurrence times of 4.5-7 days (the longest known by a factor ≳ 2) and also show the most peculiar timing behavior yet. At peak flux >10−11 erg cm−2 s−1, it is 10x brighter than any known QPE, and its QPE amplitudes (500x quiescence) are the highest by 25x. The source shows a transient X-ray spectral feature suggestive of a relativistic outflow, which has not yet been observed in other QPEs, but will provide key diagnostic information on the radiation mechanism. In short, ZTF19acnskyy is an exemplar QPE source and only NICER can resolve its flares. Here we propose for a 245 ks monitoring campaign spanning 245 days in Cycle 7.
8156	ELUCIDATING THE FEEDING MECHANISM OF CYGNUS X-1	PAUL DRAGHIS	We propose a month-long NICER monitoring campaign of Cygnus X-1, using 120 1ks exposures, simultaneous with optical monitoring of the source. This will not only allow us to probe the connection between the optical and X-ray variability in detail, but also establish an unprecedented data set, which will help advance our understanding of the physics of accretion. Through this program, we aim to identify the correlation and lag between the optical flaring of the companion star that fuels the accretion onto the black hole, the presence and strength of X-ray absorption features caused by stellar winds, and the changes in X-ray flux of the inner regions of the accretion disk. This project will explain the way black holes in high-mass X-ray binaries are fed by their stellar companion.
8158	AN EXCESS OF EXCESS: INCREASED SOFT X-RAY EMISSION AS A KEY TO DISK PHYSICS IN A RECENTLY RE-IGNITED AGN	DANIEL LAWTHER	The changing look AGN Mrk 590 has fully re-ignited, reaching its highest UV--optical fluxes since the early 1990s, and displaying strong broad Balmer line emission. Based on a single recent XMM-Newton observation, the soft X-ray excess flux has increased much more than predicted by the previously established linear trend. We ask to monitor the soft excess emission with NICER to probe its dependence on continuum flux over a broader dynamic range than previously explored, and to test whether it is still best described by a Comptonizing atmosphere of a passive disk.

Prop #	Title	PI Name	Abstract
8159	NICER TOO OBSERVATIONS OF THE ERUPTION OF T CRB	NAZMA ISLAM	The symbiotic recurrent nova T CrB might undergo an eruption in 2025-2026 and become one of the brightest recurrent nova. We request ToO observations of T CrB with NICER during its next eruption, with a daily monitoring of 2 ks for about 250 days of the eruption (500 ks in total). The flexibility of operations, higher spectral sensitivity and better timing resolution of these NICER observations would be crucial in carrying out comprehensive monitoring of the stages of the eruption and detailed spectral analysis. These would be crucial in testing models of particle acceleration, mass accretion and thermonuclear burning in novae. These observations would also complement the global multi-wavelength efforts to study the once-in-a-century eruption of T CrB.
8160	TESTING THE X-RAY/UV CONNECTION IN THE BRIGHT, VARIABLY OBSCURED AGN NGC 4151 WITH NICER AND SWIFT	ETHAN PARTINGTON	Irradiation of a standard accretion disk by a compact X-ray source is expected to produce correlated X-ray and UV/Optical variability, delayed by the light crossing time between the emitting regions. However, the observed X-ray/UV lags in NGC 4151 are ~10x longer than expected, suggesting an extended X-ray corona or a second reprocessor between the X-rays and the disk. NGC 4151 is also affected by highly variable obscuration which may distort size estimates of the soft X-ray corona using observed count rates. Our 4.5-month NICER campaign will deliver daily X-ray spectra with sufficient S/N to obtain time-resolved measurements of the intrinsic X-ray fluxes in multiple bands, which will be tested for correlation with coordinated UV/Optical observations to map the X-ray corona and inner disk.
8163	MONITORING TERZAN 6 TO CATCH A POSSIBLE TRANSITIONAL MILLISECOND PULSAR	JEROEN HOMAN	Recently, a new neutron-star LMXB was discovered in the globular cluster Terzan 6. This source, X2, has been classified as a candidate transitional millisecond pulsar (tMSP). Usually, X2 has luminosities between 2.4e33 and 6e34 erg/s but RXTE monitoring of Terzan 6 suggests that in rare instances X2 enters an outburst state (>1e36 erg/s). In one of these outburst states indications of X-ray pulsations were seen in a short RXTE observation. We propose NICER monitoring of Terzan 6 to catch X2 in an outburst state and confirm the presence of pulsations. We request 114x0.5ks observations with a 2-day cadence. Although the chances of catching an outburst are small (20% in Cycle 7), identification of X2 as a tMSP would add a valuable new member to a very small class of sources.

Prop #	Title	PI Name	Abstract
8164	NICER FOLLOW-UP OF OPTICALLY SELECTED TIDAL DISRUPTION EVENTS TO CONFIRM CANDIDATE QUASI-PERIODIC ERUPTIONS	JOHEEN CHAKRABORTY	Quasi-Periodic Eruptions (QPEs) have shown a growing association with TDEs, which was recently confirmed by the discovery of QPEs in previously known, spectroscopically confirmed optical TDEs. X-ray follow-up of known TDEs at late times is thus the most promising avenue for targeted discovery of further QPEs, given that all-sky X-ray surveys and archival studies have mostly exhausted other discovery streams. To this end, we have performed a comprehensive survey of Swift, NICER, and eROSITA archival data of all known TDEs (∼150 total) to determine whether any of them show QPE-like variability. We propose for NICER follow-up of four optically-selected TDEs, showing extremely unusual rapid high-amplitude X-ray variability, to confirm whether they are QPEs.
8165	NICER CONSTRAINTS ON BLACK HOLE BINARY ACCRETION PHYSICS	RILEY CONNORS	Several unknowns persist in our understanding of the accretion flow properties and nature of outbursting black hole X-ray binaries: principally the inner disk radius location, the disk density, iron abundance and inclination, and ultimately black hole spin. The superior soft X-ray sensitivity and spectral/timing resolution of NICER, and the high energy coverage provided by NuSTAR, present a golden opportunity to get constraints on these key quantities. We propose joint NICER and NuSTAR ToO observations of any one of 30 known transient black hole X-ray binaries, none of which have been observed with NICER in outburst. We request a total of 8 ks of NICER time, split into four 2 ks snapshots roughly one week apart, each simultaneous with a 20 ks NuSTAR exposure (total of 80 ks).
8166	SEARCHING FOR CLOSE SUPERMASSIVE BLACK HOLE BINARIES WITH EROSITA, NICER, AND XMM-NEWTON	DUSAN TUBIN	Supermassive black hole binaries (SMBHB) are rare and elusive objects that are expected to produce periodically variable X-ray emission. eROSITA opened a window to search and discover peculiar AGNs and provide an unprecedented opportunity to discover SMBHBs. We request five monitoring campaigns for eROSITA-selected candidates that have not been observed previously. Each campaign consists of 6 individual pointings of 10 ks each, spaced roughly 4 weeks apart. The campaigns are needed to track the flux modulation of the source on a monthly time scale, discriminate red-noise-induced variability, and determine the details of follow-up observations to confirm the binary nature. The most convincing cases will be the target of higher and longer cadence NICER follow-up.

Prop #	Title	PI Name	Abstract
8171	A COMPREHENSIVE CAMPAIGN FOR THE NEXT MAJOR OUTBURST OF H1743-322	EDWARD NATHAN	H1743-322 is a well studied X-ray binary which spent many years undergoing small, `failed' outbursts, until 2018. Its current state is reminiscent of the state the source was in shortly before the major outburst in 2003, which was significantly more luminous and long lived. We propose a detailed monitoring campaign of 140 short \textit{NICER} exposures to understand the evolution of the spectral and timing properties of the source throughout the outburst.
8172	OBSCURATION, DISK WINDS AND ACCRETION STATES IN BLACK HOLE X-RAY BINARIES	OLUWASHINA ADEGOKE	A few blackhole X-ray binaries show recurrent intensity dips in their light curves during outburst. These systems also always show indication of outflowing winds. The dips are believed to be caused by clumps of obscuring material passing along the line of sight to the X-ray source. Our knowledge of the origin of such obscurer, its composition and any relation with disk winds as well as spectral state is very limited. Because the obscurers imprint their signatures on the soft X-rays more efficiently, NICER stands out as the instrument of choice to probe their nature. NICER s higher cadence also allows to probe the evolution of these feature. We propose target of Opportunity observations with NICER jointly with NuSTAR to study these features and any correlations with spectral states.
8173	MONITORING A TRANSIENT BLACK HOLE X-RAY BINARY IN THE SOFT-TO-HARD TRANSITION	OLE KOENIG	LMXB black holes cycle through a q-shaped hysteresis during their outburst. The lower branch of this q-diagram is poorly understood but evidence mounts that some physics of the outburst can be best studied in this region. With this ToO monitoring campaign, we will observe the soft-to-hard transition in unprecedented detail to test for an onset of disk truncation and empirically connect it to the presence of recently found variability features prominent in the lower branch of the q-diagram.

Prop #	Title	PI Name	Abstract
8174	SPINNING ON THAT DIZZY EDGE: F-STAR MAGNETIC ACTIVITY CYCLES	BRADFORD WARGELIN	Although the number of stars with known stellar cycles has grown to several hundred, only about 50 cycling stars have been well studied using CaII H&K chromospheric emission, and only ten in X-rays. X-ray emission is a particularly powerful diagnostic of stellar magnetic activity, with cycle amplitudes that are much larger than in other wavebands. The sample of monitored X-ray cycles is small, but some important insights are emerging, such as an apparent correlation of cycle amplitude and rotation. We request monitoring observations of HD 75332 and HD 49933, two F stars with very thin outer convective zones and cycle periods of under one year, in order to investigate the extremes of X-ray cycle behavior and improve our understanding of magnetic activity.
8180	CATCHING THE FIREBALL PHASE OF NOVA T CORONA BOREALIS	OLE KOENIG	Nova T CrB is predicted to be the brightest nova since 1975 and will likely revolutionize our understanding of the physics of thermonuclear explosions on white dwarfs. The fireball phase, measured once before, occurs before the optical brightening and is the earliest detected phase of the outburst. Due to the proximity of T CrB and resulting brightness, NICER is likely the only telescope that facilitates a high-quality spectrum and lightcurve during the fireball phase. Catching it in T CrB will, for the first time, enable us to constrain the initial expansion velocity of the photosphere, study absorbing material present in the system, and inform on the presence of winds.
8184	LONG-TERM EVOLUTION OF X-RAY QPES IN AT2019QIZ: BUILDING A LEGACY DATA SET	MURYEL GUOLO	X-ray Quasi-Periodic Eruptions (QPEs) are intense, recurring bursts of thermal X-rays observed in galactic nuclei. The discovery of QPEs in the tidal disruption event (TDE) AT2019qiz represents the first definitive connection between these phenomena. Multi-wavelength modeling of the accretion disk formed after the TDE indicates that the QPEs may result from interactions between the disk and an orbiting object, i.e., an Extreme Mass Ratio Inspiral (EMRI). We propose two high-cadence monitoring campaigns of AT2019qiz using NICER during Cycle 7. These observations will enable precise measurements of eruption timing, amplitude evolution, and the search for potential super-periods, providing critical insights into QPE and EMRI physics.

Prop #	Title	PI Name	Abstract
8186	RESOLVING A QUASI PERIODIC OSCILLATION IN GRS1915+105 UPON ITS RETURN TO AN UNOBSCURED STATE	EDWARD NATHAN	Before 2018, the black hole X-ray binary GRS1915+105 was extremely bright in X-rays, and at times showed powerful type-C quasi-periodic oscillations (QPOs). We propose a joint 30 ks NICER and 30 ks NuSTAR observation of a QPO in GRS1915+105 if the source leaves its current X-ray obscured state. We will apply state-of-the-art phase resolving techniques to test for the presence of a precessing corona via its effects on the flux reflected from the accretion disc.
8191	COMPLETING THE WR 140 NICER X-RAY LIGHTCURVE	MICHAEL CORCORAN	We propose to use NICER monitor the X-ray spectrum of the dust producing colliding wind binary WR 140 (consisting of a C-rich Wolf-Rayet star and an O supergiant) during AO7. These observations will fill in the last remaining phase gap in the NICER X-ray lightcurve of WR 140, and will provide the best measure yet obtained of the X-ray variations of the colliding wind shock over a complete orbit of a key dust-producing dustar binary having precise orbital and stellar parameters.
8192	EXPLORING A NEW POPULATION OF FAST X-RAY TRANSIENTS WITH NICER AND THE JVLA	ELEONORA TROJA	Thanks to its innovative capabilities, the Einstein Probe (EP) mission will perform a high-cadence sensitive survey of the soft X-ray sky, detecting dozens of short-lived flares of X-ray radiation. To date, a handful of these fast X-ray transients (FXRTs) have been identified, but their physical origin remains mysterious. Real-time discovery of FXRTs and rapid follow-up of their multi-wavelength counterparts are key to identify their progenitors and emission mechanisms. Therefore, we propose to support EP discoveries of new FXRTs with a NICER/VLA program to make definitive progress in this area. The proposed observations will expand the zoo of astrophysical transients and open new frontiers of discovery in high-energy astrophysics.
8194	MEASURING THE SPINDOWN RATE OF THE CANDIDATE X-RAY DIM ISOLATED NEUTRON STAR 4XMM J022141.5-735632	MEGAN DECESAR	The Magnificent 7 (M7) isolated neutron stars are thought to be part of a larger, elusive population of that may provide insight into magnetic field structure, cooling, surface composition, and evolutionary links between different neutron star classes. No additional members of the M7 class have been firmly identified, but promising candidates have been identified via their soft thermal spectra. We have detected 1.7 s pulsations from one of these candidates, 4XMM J022141.5-735632 using NICER data (a previous search with XMM was unsuccessful). We propose a second NICER observation of this source to measure or tightly constrain its spin-down rate. This observation will allow us to determine whether its properties like B and spin-down energy are consistent with the M7.

Prop #	Title	PI Name	Abstract
8196	NICER SEARCH FOR X-RAY PULSATIONS IN CANDIDATE TRANSITIONAL MILLISECOND PULSARS	MEGAN DECESAR	The NICER X-ray Timing Instrument is highly optimized for the study of X-ray pulsars, including millisecond pulsars (MSPs). MSPs form by accreting matter from a companion and spinning up to millisecond periods. Three sources, the ``transitional MSPs'' that transition between rotation-powered and accretion states, provide strong evidence for this formation scenario. These sources are part of the ``redback'' MSP class when in the rotation-powered state. In their subluminous disk state, their rotation-powered pulsations cease, but X-ray pulsations can instead be observed. We propose to search for X-ray pulsations in two transitional MSP candidates using NICER, in order to confirm their neutron star nature and as a first step toward longer-term timing observations.