NICER GO Cycle 5 - List of Accepted Proposals

Prop #	Title	PI Name	Abstract
6011	THE ORIGIN OF SUB-SECOND MULTIWAVELENGTH VARIABILITY IN BLACK HOLE BINARIES	JOHN PAICE	Over the past few years, successful multiwavelength campaigns on a handful of Galactic Black Hole (BH) X-ray Binaries have revealed remarkable sub-second variability and significant optical/infrared-vs-X-ray correlations, with some arising in the first acceleration zone at the base of a compact, relativistic jet. But what drives these variations, and are they really as stable as they sometimes appear? Here we propose up to 10 individual anticipated ToO observations (5ks each) on 1--2 hard state outbursts, strictly simultaneous with optical/infrared timing. We will probe rapid, sub-second photometric variations and search for inter-band time delays to disentangle the jet/disc/coronal components using spectral-timing, and probe these systems on theory-critical, unprecedented scales.
6028	IDENTIFYING NEWBORN COMPACT OBJECTS IN FAST, BLUE OPTICAL TRANSIENTS USING NICER'S SUPERIOR TIMING OBSERVATIONS	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 5. 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.
6033	MONITORING MAGNETARS WITH NICER	GEORGE YOUNES	Magnetars are young highly-magnetized isolated neutron stars with emission peaking in the X-ray band. The decay of their super-strong magnetic fields fuels their high energy radiation. Here, we propose a yearly monitoring program of six magnetars with NICER to establish their spectral and phase-coherent timing properties. Such a campaign will refine our understanding of these unique sources by discovering new spin-up and spin-down glitches and revealing their relative strengths and recovery times, and uncover new burst and outburst epochs. Such observational results are crucial to guide the development of the crust theory in the regime of super-strong B-fields, and the link between crustal and magnetospheric physics which dictate the connection between all of the above phenomena.

Prop #	Title	PI Name	Abstract
6035	MONITORING SMC X-1'S WARPED ACCRETION DISC OUT OF EXCURSION	KRISTEN DAGE	SMC X-1 is thought to have a warped, precessing accretion disk (as evidenced by superorbital period modulations that range from 45-60 days). This implies that the accretion disk configuration is changing during this time. Previous work has well demonstrated that the shape of the soft pulse periods (i.e. the reprocessed emission) changes within a single 60 day cycle. The superorbital period began in 2020 and ended in 2022, with NICER monitoring throughout the second half of the excursion. This proposed program would use NICER to monitor the past-excursion observations, including spectral shape and pulse profiles of SMC X-1 to act as a benchmark as the superorbital period takes a rare excursion and use this exceptional dataset to probe the physics of this warped, precessing accretion disk.
6039	MAGNETAR OUTBURSTS AS A CLUE FOR UNDERSTANDING MAGNETIC ENERGY DISSIPATION AND FAST RADIO BURSTS	TERUAKI ENOTO	Magnetar X-ray outburst is sporadic dissipation of magnetic energy via short bursts, giant flares, and persistent emission enhancement. The physics underlying this process is still an open question. Follow-up NICER observations of transient magnetars have provided clues for this question, as shown by recent successful NICER ToO programs: the radio-loud XTE J1810-197, the Galactic fast radio burst (FRB) source SGR 1935+2154, high-B pulsar resembles Swift J1818.0-1607, a new source SGR 1830-0645, and the long-term active Swift J1555.2-5402. Prompt X-ray observation is becoming more and more critical after discovering the FRBs from the Galactic magnetar SGR 1935+2154 in 2020. Here we propose NICER ToO observations of magnetar outbursts in soft X-rays
6040	NICER MONITORING OBSERVATIONS TO IDENTIFY AND STUDY COSMOLOGICAL BLACK HOLES AS THEY TURN ON A RELATIVISTIC JET	DHEERAJ PASHAM	NICER has recently captured the spectro-timing variability of the farthest stellar tidal disruption event (TDE) to-date. Following this success, we propose ToO monitoring observations (2x500s per day for 60 days~60 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.

Prop #	Title	PI Name	Abstract
6053	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.
6057	THE FIRST X-RAY POLARIMETRY AND SPECTROSCOPY OBSERVATIONS OF TRANSIENT BLACK HOLE X-RAY BINARIES	FIAMMA CAPITANIO	We propose 3joint NICER+NuSTAR ToOs observations of TBHXBs to be taken in coordination with the IXPE, a NASA-ASI mission launched on 2021. The second year IXPE observing plan includes 3ToOs of TBHXB in outburst. Each ToO includes one long (300ks) exposure in the hard state and another in the soft state. In fact, until now IXPE has not had an opportunity to observe a TBHXB in outburst because of the lack of bright outbursts occurred within the visibility windows. We propose (for each ToO) two 30ks NICER+NuSTAR exposures during the hard state IXPE observation and one 20ks NICER+NuSTAR exposure during the soft state IXPE observation. This will provide, as demonstrated by the IXPE first year results, an unprecedented combination of X-ray polarimetry and high resolution broad-band spectroscopy
6058	NICER TIMING OF THE TRANSITIONAL PULSAR PSR J1023+0038: A UNIQUE TESTBED FOR LOW-LEVEL ACCRETION PHYSICS	SLAVKO BOGDANOV	In 2013, PSR J1023+0038 transformed from a rotation-powered radio millisecond pulsar state to an accretion-disk-dominated X-ray pulsar state, where it has remained since. In its current accretion-disk state it shows coherent X-ray pulsations, suggestive of active accretion onto the neutron star surface at very low luminosities (~10^33 erg/s). Using these pulsations we have found that in the X-ray state the pulsar is spinning down ~25% faster than in the radio state. We propose to extend our long-term timing solution with NICER through an impending state transition in the near future, which would be immensely helpful for understanding how tMSPs undergo sudden state transitions and enable us to constrain accretion models.

Prop #	Title	PI Name	Abstract
6060	MONITORING ACCRETING MILLISECOND X-RAY PULSARS IN OUTBURST	PETER BULT	We propose a general purpose monitoring campaign of the next outburst of any AMXP, known or unknown. We request a total of 50 ks observing time to be spread over the typical 2 - 3 week duration of such an outburst, so that we can follow the properties of the pulsations as a function of flux. Additionally, this even sampling of the full outburst will also allow us to characterize the non-pulsating emission through a spectroscopic and timing study.
6072	X-RAY FOLLOW-UP OF TWO ISOLATED NEUTRON STAR CANDIDATES FROM THE EROSITA ALL-SKY SURVEY	JAN KURPAS	Famous for their purely thermal emission, X-ray dim isolated neutron stars (XDINS), while still few in numbers, could be as common as radio pulsars and may play an important evolutionary role among the known Galactic isolated neutron star (INS) population. The wide area and depth of the eROSITA All-Sky Survey (eRASS) enables to detect XDINS beyond the solar vicinity. For two candidates, selected from the eRASS, optical follow-up with the Large Binocular Telescope and the South African Large Telescope make a non-INS nature very unlikely. We thus propose follow-up observations with NICER, to probe the candidates' temporal and spectral properties, with the goal to investigate how well the candidates conform to the XDINS population or other classes of INS.
6073	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 flux that is a factor >2 larger. Moreover, the source pulse shape and pulsed fraction has shown an intriguing change over the course of 2021. We propose a yearly monitoring campaign of this historic source to follow-up its late-time spectral and temporal properties as it decays back to quiescence.
6074	TRACKING THE EVOLUTION OF CORONA IN A CHANGING LOOK AGN	SIBASISH LAHA	Large-scale time-domain surveys have lead to the identification of new types of extreme variability in active galaxies, called "changing look" active galactic nuclei (CL-AGN). The drastic changes seen in CL-AGNs in such short timescales (a few months to years) involves large fluctuations (and even complete disappearance) of the coronal X-ray emission and then its revival/re-heating. The CL-AGN are therefore ideal test beds to understand the properties of the AGN central engine and the coronal X-ray emission, in particular. This observational program aims to capture 2ks snapshots of the 0.3-10 kev X-ray spectra of a CL-AGN, bi-weekly for 6 months (total 96ks), to understand how the spectral and physical properties of AGN corona, and soft X-rays evolve during these violent phases.

Prop #	Title	PI Name	Abstract
6075	NICER+FAST SIMULTANEOUS TOO OBSERVATIONS OF REPEATING FAST RADIO BURSTS.	SIBASISH LAHA	The fast radio bursts (FRBs) are milli-second duration radio transients, the origin of which is still unknown. Possible mechanisms that could generate these highly coherent radio emission from FRBs involve a) neutron star magnetospheres and/or b) relativistic shocks far from the central energy of the source. To understand the origin of the FRBs we will monitor the two crucial aspects during their bursting phases: (A) Polarization signatures in radio band with FAST (Five hundred metre Aperture Spherical Telescope), and (B) detect any possible X-ray counterpart corresponding to the FRBs with NICER (radio to X-ray flux ratio). We propose to observe four repeating FRBs simultaneously with NICER+ FAST. The ToO trigger will be provided by FAST, when the sources are in bursting phases.
6077	NICER TOO OBSERVATIONS OF SWIFT/XRT DEEP GALACTIC PLANE SURVEY (DGPS) SOURCES	CHRYSSA KOUVELIOTOU	We propose a ToO follow up program linked to the ongoing Swift/XRT Deep Galactic Plane Survey. Phase-I covered 10 deg<|l|<30 deg and|b| >0.5 deg and has detected ~1000 sources, of which ~400 are new X-ray sources. Phase-II is covering 30 deg<|l|<50 deg and |b|>0.5 deg, which similarly to Phase-I, aims at mapping X-ray sources with good depth and coverage to enable source identification and multi-wavelength followups. Source identification strongly depends on timing and spectral information to accurately measure time variability and X-ray flux. NICER observations are, therefore, pivotal in source classification. We request 5 ToOs, 10 ks each (total of 50ks), of new sources found in Phase-II observations, which will be provided to us through private consultation.
6078	NICER+NUSTAR OBSERVATIONS OF TIDAL DISRUPTION EVENTS: OPENING A NEW CHAPTER IN BLACK HOLE SUPER-EDDINGTON ACCRETION	YUHAN YAO	Tidal disruption events (TDEs) offer great opportunities to study the physics of black hole accretion in the super-Eddington regime. The field of X-ray TDE study is still so young such that each object reveals new and unexpected phenomena. We propose high-cadence NICER monitoring on two X-ray bright TDEs to address: (1) how often and on what timescales does corona formation happen; (2) does the thick-to-thin disk transition happen in TDEs other than AT2021ehb; (3) what is the fraction of TDEs that launch on-axis relativistic jets. We also ask for one epoch of NuSTAR observation for one TDE that is sufficiently bright in the hard X-ray. The NICER+NuSTAR spectrum will allow us to study the geometry of the super-Eddington accreting inflow and the powering of the outflow/jet.

Prop #	Title	PI Name	Abstract
6082	THE FAINTEST PERSISTENT X-RAY BINARY	THOMAS MACCARONE	The object 4U~1556-60 was discovered by the Uhuru satellite, but remains surprisingly poorly characterized. It shows no Type I bursts nor pulsations, so it is not clear whether its accretor is a black hole or a neutron star. Its optical spectrum shows hydrogen emission lines, but its optical faintness implies an ultracompact X-ray binary nature. The recent estimation of its distance in Gaia DR2 and EDR3 indicate that it is dramatically nearer and less luminous than had previously been assumed. We propose to search for pulsations in the X-ray emission from the source's soft X-ray emission to see if it is a neutron star. We also propose to search for orbital modulations, and make good measurements of the centroid and profile of the iron line from the source to determine how it is produced.
6083	CORRELATED RADIO/MM-X-RAY TIMING OF CYGNUS X-1	THOMAS MACCARONE	We propose to observe Cygnus X-1 with NICER simultaneously with millimeter band observations. These data will provide a time lag for the mm emission from the X-ray emission, helping to understand the structure of the jet, following up on a previous result which indicates that either there is strong acceleration in the part of the jet from which the radio emission comes, or the size scale of the jet is not linearly proportional to the wavelength.
6086	FAST MULTI-WAVELENGTH VARIABILITY FROM A BH	THOMAS MACCARONE	We propose 12 observations of a black hole transient of 3.6 ksec each with NICER to be made simultaneously with Gemini/Zorro fast-timing measurements in the infrared. These data will be used to understand the evolution of the optical/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.
6088	A LEGACY OF TURTLES: 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
6093	MONITORING THE NEAREST TIDAL DISRUPTION EVENT CANDIDATE IGR J12580+0134	ASHKBIZ DANEHKAR	We propose NICER monitoring observations of the nucleus of the spiral galaxy NGC 4845, IGR J12580+0134, the nearest tidal disruption event (TDE) candidate with off-axis relativistic jets that occurred at the beginning of 2011 and in the middle of 2016. Our goal is to track the soft X-ray excess, which could soon have an X-ray or/and radio outburst based on the outburst cycle in 2011-2019 lightcurves. NICER is perfectly suitable for X-ray monitoring because of its large soft X-ray effective area without pile-up and superb time resolution. The NICER observations will allow us to trace the origin of thermal emission in the soft excess, and detect a future TDE for the hardness timing analysis at different epochs and follow-up radio observations of a relativistic jet.
6108	CONTINUED NICER+SWIFT MONITORING OF REPEATING STELLAR TIDAL DISRUPTION EVENTS: BUILDING A LEGACY DATASET	DHEERAJ PASHAM	We are requesting for a joint NICER and Swift (X-ray + UV) monitoring of two X-ray bright, repeating stellar tidal disruption events (TDEs) AT2018fyk and eRASStJ045650. Joint NICER+Swift campaign over the past 4 years (2018-2022) has captured a second outburst from these TDEs which has been interpreted as the signature of a repeating partial disruption. Our main goals are 1) to capture the full evolution of AT2018fyk's second outburst and additional outbursts from eRASStJ045650, and 2) acquire high-quality X-ray and UV data during these subsequent outbursts and compare them with previous flares. Our goals require long-term monitoring, high quality X-ray spectra, high X-ray sensitivity, and UV coverage. This makes NICER+Swift the best combination for this study.
6111	SETTING UP OF THE CENTRIFUGAL BARRIER FOR ACCRETION "IN REAL TIME"	SERGEY TSYGANKOV	We propose to observe for the first time the transition from the accretion state to the "propeller" regime in "real time". At this point the interaction of the accretion flow with magnetic field of an X-ray pulsar (XRP) is known to abruptly inhibit the accretion, however, the transition itself has not been observed up to now. As a target we propose one of the transient XRP 4U 0115+63 and V 0332+53 which had already been observed in both states, and where the time of the transition can be predicted accurately. These two objects provide thus a unique opportunity for a first detailed study of plasma interaction with the magnetic field of the NS, The unique combination of spectral and timing capabilities with great flexibility make NICER the only instrument capable of such observation.

Prop #	Title	PI Name	Abstract
6113	THE FIRST X-RAY POLARIMETRY AND SPECTROSCOPY OBSERVATIONS OF GRS 1915+105	ADAM INGRAM	We propose three 30ks NICER exposures contemporaneous with three 20ks NuSTAR exposures of the black hole (BH) X-ray binary (XRB) GRS 1915+105, to be taken during a six-day long Imaging X-ray Polarimetry Explorer (IXPE) target of opportunity (ToO) observation of the source. The IXPE ToO will be triggered when the source resumes behaviour for which a detection of X-ray polarisation can reasonably be expected, and we will trigger this companion program in response. The high spectral resolution and broad band pass provided by NICER+NuSTAR coverage will be vital for breaking degeneracies in polarization models.
6114	NICER OBSERVATION OF GRS 1915+105-LIKE VARIABILITY IN A GALACTIC X-RAY BINARY	ARIANNA ALBAYATI	GRS 1915+105 is a BH LMXB that displays a wide and complex set of variability patterns in its X-ray flux over time. This behaviour was thought to be unique and driven by near-Eddington-limit accretion. Two further sources (IGR J17091-3624 and the Rapid Burster) have been seen to exhibit GRS 1915-like variability during outbursts, casting doubt on the requirements of Eddington-limited accretion or a black hole primary. As such, the mechanism through which this behaviour is generated remains unclear. We propose four 20ksec ToO observations (for a total of 80ksec) separated by ~2 weeks to observe any source that exhibits GRS-1915-like variability in AO5 in order to increase our sample size of GRS 1915-like objects, thus allowing us to better constrain models that explain their behaviour.
6117	DETECTING MILLISECOND X-RAY PULSATIONS AND CONFIRMING THE ULTRACOMPACT NATURE OF THE LOW MASS X-RAY BINARY 4U 1850-087	MASON NG	4U 1850-087 remains as the only persistent ultracompact X-ray binary (UCXB) for which NICER has not yet observed or studied in any detail, which represents a real observational gap given the small number of UCXBs known so far. 4U 1850-087 is a UCXB with a possible 20.6 minute orbital period derived from ultraviolet observations from the Hubble Space Telescope, which has not yet been confirmed with X-ray observations. We propose a 20 ks observation in order to search for millisecond X-ray pulsations from the neutron star primary, establish parameters of the ultracompact orbit, and investigate the physics of mass transfer.

Prop #	Title	PI Name	Abstract
6124	A NICER TDE SNAPSHOT SURVEY: ACCRETION DISKS, ULTRA-FAST OUTFLOWS, AND THE NATURE OF THE UV/OPTICAL EMISSION	THOMAS WEVERS	Tidal disruption events (TDEs) provide a dynamic view of supermassive black hole (SMBH) accretion. We propose a 3-epoch, 144 kilosecond snapshot survey of all newly discovered X-ray bright TDEs with NICER, in order to i) provide the first quantitative constraints on the ubiquity of ultra-fast outflows (UFOs), associated to near or super-Eddington accretion, and ii) study in detail the evolution of the accretion disk, enabled by state of the art relativistic thin accretion disk modeling. The proposed observations will constrain the temperatures and radii, as well as Eddington ratios and bolometric corrections of newly formed TDE disks. Combined with constraints on the presence of UFOs, this will help to elucidate the hotly contested nature of the poorly understood UV/optical emission.
6125	THE LONG-TERM EVOLUTION AND SHORT TIMESCALE VARIABILITY OF THE REPEATING TDE (AND QPE SOURCE) GSN 069	GIOVANNI MINIUTTI	We request monitoring observations of GSN 069 with NICER. GSN 069 is the first source where quasi periodic eruptions have been identified. Its long-term evolution is consistent with a repeating tidal disruption event (TDE). The goals of our NICER program are: (i) to follow the long-term evolution of GSN 069 over the whole NICER's cycle 5 with sufficient accuracy not to miss any exceptional event such as the bright ~150 d long X-ray flare detected in 2020; (ii) to study the properties and nature of the observed short timescale X-ray variability of the quiescent level of GSN 069 on timescales ranging froma few days to months.
6127	WIND-WIND INTERACTION AND PARTICLE ACCELERATION IN THE KLEINMANN STAR TRAPEZIUM SYSTEM	GUILLEM MARTI-DEVESA	Binary stellar systems with shocked, powerful winds have been suggested as particle accelerators (i.e. colliding-wind binaries, or CWB). Therefore, CWBs are potential gamma-ray sources detectable by the Fermi-LAT, yet only eta Car and g2 Vel have been identified as such. Those two systems posses very different geometrical and wind conditions and, consequently, any new gamma-ray emitting CWB identified will clarify the conditions required for particle acceleration in stellar binaries. The Kleinmann Star is a system composed of two CWBs recently associated with a gamma-ray source, but their orbital periods and the variable conditions in the shocked winds are unknown. The proposed monitoring with NICER will characterise them and allow to establish this unique system as a particle accelerator.

Prop #	Title	PI Name	Abstract
6133	A NEW TECHNIQUE TO MEASURE WHITE DWARF RADII WITH BLACKBODY RADIATION	TAKAYUKI HAYASHI	Although the WD mass limit is believed to be universal, recent several theoretical studies claimed that the mass limit can vary. For example, WD's strong internal magnetic field should affect the mass limit. To investigate this effect, we have to measure both of mass and radius of the magnetic WDs. Here, we propose a new technique to measure the WD radius which utilizes a fact that a cap blackbody radiation zone on the WD sends significant flux to observers because of the WD curvature even when the normal vector of the center of the radiation zone is normal to the line of sight. We will demonstrate our new technique with four 15 ks NICER observations (60 ks in total) of a magnetic WD binary V405 Aur. We prefer to divide the observation time to see fluctuation of the background.
6134	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 with 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.
6139	ACCRETING MILLISECOND X-RAY PULSARS WAVEFORM MODELING AND THE EQUATION OF STATE OF NEUTRON STARS	ALESSANDRO PAPITTO	Modelling of the waveform of the X-ray pulsations of accreting ms pulsars (AMSP) is one of the most promising ways to constrain the equation of state of neutron stars. However, it requires an extremely high number of counts to break the degeneracy between the many parameters that shape the X-ray pulse profiles. The polarimetric information granted by the forthcoming IXPE mission will measure the geometry of the hot spots independently, easing the requirement. We propose a 350 ks NICER ToO observation of the next outburst of an AMSP to measure the pulsar ephemeris and fold simultaneous IXPE data and derive a high statistics energy-resolved pulse profile. The proposed observation will measure the mass and the radius with an accuracy of a few per cent.

Prop #	Title	PI Name	Abstract
6140	TIMING THE EVOLUTION OF ULTRACOMPACT WHITE DWARF BINARIES	TOD STROHMAYER	Ultracompact white dwarf binaries are the most compact binary systems known and can have orbital periods shorter than 5 minutes. Two such systems are of special interest as pulsating, soft X-ray sources for unique, quantitative studies of their orbital evolution. Both HM Cnc and V407 Vul show soft X-ray modulations at their orbital periods of 5.4 and 9.5 minutes, respectively. Timing the arrival of these pulses provides a powerful probe of orbital evolution in these very close binaries, where the interplay of torques associated with gravitational radiation and accretion set the evolution of their orbits. We propose NICER observations to further enable the long-term monitoring of their orbital periods.
6141	RELATIVISTIC REFLECTION AND REVERBERATION MAPPING IN A BLACK HOLE BINARY	JINGYI WANG	Black hole astrophysics can be regarded as a fundamental tool in studying the accretion and ejection physics in the strongest gravity regime in the Universe. Reflection spectroscopy studies the time-averaged flux-energy spectrum, providing constraints on properties in the accretion disk and the corona, but degeneracies take place in problems such as the truncation level of the disk. Reverberation mapping is a timing technique revealing the disk-corona geometry in the innermost regions, which could help break degeneracies. With recent cutting-edge developments in physical spectral-timing models, the main goal in this proposal is to find clues on the state transition mechanism, and the coupling between the disk, corona and jet in black hole binaries.
6143	NICER, NUSTAR, AND IXPE SPECTRO-POLARIMETRIC CONSTRAINTS ON THE SOFT STATE OF CYGNUS X-1	JAMES STEINER	A groundbreaking recent study of the hard state of Cygnus X-1 with IXPE, NICER and NuSTAR provided the first robust soft X-ray polarimetric detection of an accreting black hole. The spectro-polarimetric results yielded unprecedented constraints on the jet, corona, and accretion disk geometry. This was anchored in the broadband X-ray spectral data from NICER and NuSTAR being modeled in conjunction with IXPE's polarimetric data. If Cyg X-1 transitions to its soft state, an approved 600ks IXPE campaign will be triggered. To achieve equivalent constraints on the soft state's accretion geometry as with the hard state campaign, we request an accompanying 5ks per day for 12 days with NICER, and 3 x 20ks observations with NuSTAR during the IXPE run, 60ks apiece for NICER and NuSTAR.

Prop #	Title	PI Name	Abstract
6146	MONITORING THE EVOLUTION OF NASCENT ACCRETION DISCS FORMED IN TIDAL DISRUPTION EVENTS	ADAM MALYALI	During its all sky survey, SRG/eROSITA is able to detect a large number of Tidal Disruption Events (TDEs), identified through their ultra-soft, large amplitude flares from previously quiescent galaxies. We request NICER monitoring of 6 X-ray bright TDEs to be discovered by eROSITA in Cycle 5. The NICER data will be used to: i) search for quasi-periodic modulations in these X-ray light curves from precessing nascent accretion discs, ii) characterise the X-ray variability of TDEs over short and longer timescales after the initial eROSITA detection.
6148	UNVEILING THE ORIGIN OF FE L EMISSION IN SERPENS X-1	RENEE LUDLAM	Serpens X-1 is a persistently accreting neutron star low-mass X-ray binary that exhibits multiple emission line components in its reflection spectrum. The detection of multiple emission line components (e.g., Fe K and Fe L) in the reflection spectrum provides the opportunity to test different theories about where the emission arises in the disk and challenge our current understanding of accretion. Therefore, we request a 30 ks NICER observation with a contemporaneous 30 ks NuSTAR observation in order to test the emission radius of the Fe K line and lower-energy Fe L blend. We demonstrate that the requested observations are necessary to test the different ideas with respect to emission radii and enhance our understanding of accretion.
6152	CONTINUING THE LEGACY PROGRAM STUDYING THE QUASI-PERIODIC ERUPTIONS IN ERO-QPE1	RICCARDO ARCODIA	X-ray Quasi-Periodic Eruptions (QPEs) are a phenomenon which is still largely unexplained. Models based on a two-three body system with a massive black hole and at least one stellar-mass companion have recently gained significant attention, but have so far compared only qualitatively with observations. Some of them could be ruled out by peculiar short- and long-term evolution of the variability properties. For instance, the larger the observed scatter in the periodicity, the more difficult it is to explain this behavior with a simplistic purely orbital trigger for the QPEs. NICER is crucial in studying sources evolving on timescales of several hours, like eRO-QPE1. Here, we ask for further follow-up observations of eRO-QPE1, continuing a legacy program started in Cycle 2.

Prop #	Title	PI Name	Abstract
6172	NICER'S CLEAR VIEW OF THE HOT COLLIDING WIND SHOCK IN WR 140	MICHAEL CORCORAN	Eccentric, massive, dust-forming colliding wind binaries provide unique laboratories to study how shocked astrophysical plasmas react to changing thermodynamic conditions and simultaneously produce X-ray emitting gas and form dust. WR140 is a long-period, highly eccentric, visual, massive evolved binary in which wind-wind interactions generate variable emission from the X-ray to radio bands and dust near periastron. JWST has now imaged about 18 dust shells around WR 140 created over the last 143 years. We propose weekly monitoring of WR 140 with NICER through Cycle 5 as the column density reaches its minimum value and the X-ray emission increase begins to accelerate as the inverse of the stellar separation as the stars move towards periastron passage on November 22, 2024.
6177	NICER INVESTIGATIONS OF THERMONUCLEAR BURSTS FROM NEUTRON STARS IN LOW MASS X-RAY BINARIES	GAURAVA KUMAR JAISAWAL	We propose to study thermonuclear X-ray bursts from neutron stars in low mass X-ray binaries using NICER data. The observations will probe the nature of the accretion emission and its response to X-ray bursts. Our primary goal is to derive the fundamental burst parameters such as recurrence time and fuel composition, in addition to understanding the burst-accretion disk interactions. We will examine the bursts in timing as well as spectral domains to probe the nature of burst oscillations along with searching the spectral signature of heavy elements that may form on the neutron star surface. To meet our research goals, the superior spectral and timing resolutions of NICER are key to reveal physical processes at work both in the burst wind and in the impacted accretion disk.
6183	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 recorded 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.

Prop #	Title	PI Name	Abstract
6185	WHEN THE PULSAR MEETS CIRCUMSTELLAR DISK IN THE TEV GAMMA-RAY BINARY HESS J0632+057	KAYA MORI	HESS J0632+057 is one of the rare Be binary systems detected in the TeV band. Its high-energy, non-thermal emission is mostly powered by pulsar and stellar wind collisions. Recent intra-binary shock (IBS) models were able to reproduce the global lightcurve and SED data in the X-ray and TeV bands, except a sharp peak feature which is likely caused by the pulsar intersecting the circumstellar disk. The proposed NICER observations will target the two disk passage phases suggested by the latest IBS models. With Swift and NuSTAR observation data, we aim to detect the expected hydrogen column enhancement, spectral change and short-term variability during the disk passages. These X-ray observations provide a rare opportunity of probing relativistic hydrodynamics on the pulsar-disk interactions.
6186	A NICER-HAWKI-MEERKAT WEEKLY MONITORING OF LMXBS	FEDERICO VINCENTELLI	The combination of strictly simultaneous high-time resolution X-ray/ Infrared (IR) observations and radio measurements has shown to be one of the best ways to constrain the jet inner regions in Low Mass X-ray Binaries (LMXBs). Here we propose 26x6ks (total 180ks) ToO NICER observations to support with strictly simultaneous observations a proposed fast-IR variability monitoring campaign at the Very Large Telescope. The scheduling of this campaign will also be synced with the MeerKAT radio transient monitoring program ThunderKAT, allowing us to probe with unprecedented detail jets' physical properties. 4 extra observationa have been requested in order to reschedule in case of bad weather.
6189	CONSTRAINING THE GEOMETRY IN ACCRETING WEAKLY MAGNETIZED NEUTRON STARS IN LOW MASS X-RAY BINARIES	ALESSANDRO DI MARCO	Accreting weakly magnetized Neutron Stars in X-ray Binaries are amongst the brightest X-ray sources. Thanks to IXPE, there is now the possibility to have X-ray polarimetric data allowing to disentangle parameters/scenarios which at present can equally describe spectral/ temporal properties of these sources. IXPE, during its 2nd observing period, will observe Sco X-1, for which there are hints for a polarization above 4keV, 4U 1820-303 and Cir X-1, whose polarization has never been studied before. However, these sources are highly variable: therefore, we propose a simultaneous 100ks NICER and IXPE observation to monitor their energy spectra. NICER’s better energy resolution allows obtaining a better spectral model reducing the free parameters in the joint IXPE spectro-polarimetric analysis.

Prop #	Title	PI Name	Abstract
6190	X-RAY SPECTROPOLARIMETRIC OBSERVATIONS OF THE PERSISTENT HIGH MASS X-RAY BINARIES CYG X-3 AND LMC X-1	HENRIC KRAWCZYNSKI	We propose NICER and NuSTAR observations accompanying simultaneous Imaging X-ray Polarimetry Explorer (IXPE) observations of the two persistent black holes Cyg X-3 and LMC X-1. We will complement the 600 ksec IXPE observations of each source with 8 x 5 ksec NICER snapshots (40 ksec per source) and one 20 ksec NuSTAR snapshot per source. The NICER and NuSTAR observations will reveal the relative contributions of the different emission components (multi-temperature disk emission, coronal emission, reflected emission) to the IXPE signal. The two legacy data sets acquired with the three satellites will allow us to measure the black hole inclinations, to refine the black hole spin estimates, and to constrain the geometries and locations of the accretion disk coronae.
6192	A NICER MULTI-WAVELENGTH CAMPAIGN OF CYGNUS X-3	MICHAEL MCCOLLOUGH	Cygnus X-3 (Cyg X-3) is a well known microquasar which has a rich X-ray line spectrum, produces major radio flares, and gamma-ray emission. During the next year Cyg X-3 will be observed by the new mission XRISM (X-ray Spectroscopy) and possibly IXPE mission (X-ray Polarization). We are seeking to obtain NICER observations as part of a large multi-wavelength campaign (TeV to GHz) that is being put in place to support the XRISM and possible IXPE observation of Cyg X-3.
6196	PROBING THE AGN NEUTRINO CONNECTION USING MULTIMESSENGER OBSERVATIONS WITH NICER AND ICECUBE	JUSTIN VANDENBROUCKE	Multimessenger astronomy is a powerful new method for understanding astrophysical processes. This was illustrated in 2017 when IceCube reported a high-energy neutrino found to be coincident with a very-high-energy flaring blazar (detected by Fermi and MAGIC). Since then, various multimessenger studies involving neutrinos and photon data have occurred, but the associations between neutrinos and active galactic nuclei (AGN) remain uncertain. We propose a monitoring program for two AGN, NGC1068 and PKS1502+106, using NICER and NuSTAR to study the X-ray-neutrino connection. This analysis will make use of both model-dependent and model-independent approaches using observed X-ray and IceCube non-public data and will also serve as a trigger for real-time follow-up using IceCube.

Prop #	Title	PI Name	Abstract
6197	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 5. 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 also grow a NICER legacy archive of obscured variability in GRS 1915+105.
6199	NICER CHARACTERIZATION OF OJ 014: A PERIODICALLY EMITTING BLAZAR	PABLO PENIL	Blazar emissions are characterized by high variability in their gamma-ray emission, a property extended to other wavelengths, enclosing the entire electromagnetic spectrum. This variability also is observed in different timescales, ranging from years to minutes. Some blazars present predictable temporal behavior, having periodic patterns in their emissions. This proposal will observe the blazar OJ 014 with a period of 4.1 years with ≥ 5 sigma in their gamma-ray emissions. The NICER observations will help to determine the relationship between the gamma-ray fluxes and the X-ray fluxes in this periodicity blazar. Characterizing the multiwavelength properties of this blazar will unveil the mechanisms underlying this phenomenon.
6203	TRACKING TWO FUTURE BLACK HOLE OUTBURST WITH NICER AND NUSTAR	PAUL DRAGHIS	We propose monitoring two future, previously unobserved BH transients with fluxes above 50 mCrab by dedicating 45 ks of NICER time over 15 observations spread throughout each of the two outbursts. By pairing a 30 ks NuSTAR observation with a NICER observation, we can obtain a precise spin measurement for each BH. The NICER monitoring campaign will probe the effects of the evolution of the outburst on the spin measurement. This project will test the assumptions and hypotheses of BH spin measurements in X-ray binaries, and will serve as a legacy for NICER and NuSTAR. In the future, this treatment will maximize the number of new BHs observed and, together with gravitational wave observations, will allow developing a unifying understanding of stellar-mass black hole formation and evolution.

Prop #	Title	PI Name	Abstract
6204	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.
6205	A NICER VIEW OF TIDAL DISRUPTION EVENTS	YANAN WANG	The fast evolution in tidal disruption events (TDEs) provides an ideal window to study the accretion process around super-mass black holes in an observable timescale. We aim to study the X-ray evolution with respect to optical emission to constrain the optical origin, test any correlation between fractional rms variability amplitude and spectral state, search for plausible mHz QPOs and establish the state transition luminosity. Eventually, the proposed observation will allow us to better understand the geometry and the structure of the accretion flow in TDEs, and study the impact of the BH mass on the accretion process by comparing the TDE X-ray spectral and temporal evolution with its stellar-mass counterparts (sub-Eddington BHXRBs and super-Eddington ULXs).
6210	HOW ARE TYPE-B QPOS AND TRANSIENT JETS CONNECTED?	ANNE LOHFINK	During a black hole X-ray binary (BH-XRB) outburst, we can detect three different types (Type-A, Type-B and Type-C) of quasi-periodic oscillations (QPOs). The origin of Type-A and Type-B QPOs is still not clear. BH-XRBs also produce two different types of radio jets over the course of a single outburst, the compact jets are the transient jets. Recent studies hint towards a relationship between Type-B QPOs and transient jets. The prime aim of this proposal is to constrain the association of Type-B QPOs and transient jets. Simultaneous multi-wavelength observations will help us in understanding Type-B QPOs are responsible for transient jets or vice versa. We will constrain the source and geometry of the corona. Finally, we will provide information about the jet launching mechanism.

Prop #	Title	PI Name	Abstract
6213	NICER CENSUS AND MONITORING OF THE MAGNIFICENT SEVEN	MEGAN DECESAR	The Magnificent 7 (M7) are seven slowly-rotating, highly magnetized isolated neutron stars with thermal X-ray emission, six of which have X-ray pulsations. Their nearly-pure thermal spectra, along with absorption features detected in most of the M7, provide insight into their atmospheric composition and magnetic and emission geometries. The thermal emission also provides a unique probe of the neutron star equation of state. All but one of the M7 have been observed with NICER, and we propose to complete this dataset. In light of recent results suggesting that many of the M7 may display timing and spectral variability, we additionally propose to monitor a subset of these sources to search for variability in more of these sources.
6214	PROBING THE X-RAY/UV CONNECTION WITH INTENSIVE NICER/SWIFT MONITORING OF THE BRIGHT, STRONGLY VARIABLE AGN NGC 7469	ETHAN PARTINGTON	The disk reprocessing model can explain the UV/optical lag spectra of AGN but the weak and inconsistent X-ray/UV flux correlations are incompatible with the simplest version of this picture. To address this issue, our 8-month NICER campaign will deliver X-ray spectra with daily cadence and sufficient S/N to track how changes in its X-ray spectral components relate to the UV/optical. NICER's superior sensitivity provides the potential for time-resolved spectral fitting, but background issues mean this is only feasible for the brightest AGN with simple X-ray spectra. NGC 7469 is the best such available target. This daily monitoring would allow correlation of X-ray physical parameters with the UV, providing the most rigorous test of the reprocessing model to date.
6219	SIMULTANEOUS NICER AND RADIO MONITORING OF THE CLOSEST REPEATING FAST RADIO BURST	GEORGE YOUNES	We propose a simultaneous NICER/radio monitoring program of the closest extragalactic Fast Radio Burst (FRB) M81R, localized to a Globular cluster in M81. While there is abundant evidence to point to young active magnetars as FRB progenitors, the location within M81 challenges this paradigm. Yet, some argued for young magnetars born through the merger of compact stellar objects. Due to the NICER large effective area, the model of active magnetars for this local FRB can truly be put to test. The consequences are transformative with or without a high-energy counterpart to an FRB. Our proposed monitoring campaign ensures the detection of radio bursts and likely radio burst storms simultaneous to NICER observations, since such a monitoring campaign has been proven successful for radio dishes.

Prop #	Title	PI Name	Abstract
6222	OBSERVING THE BRIGHT COMET C/2022 E3 TO STUDY CHARGE EXCHANGE INTERACTIONS WITH ALL SOLAR WIND STATES	DENNIS BODEWITS	We propose to use the exceptionally bright comet C/2022 E3 (ZTF) as a natural laboratory to study solar-wind charge-exchange reactions. The combination of the comet's brightness, orbit, and timing during the solar cycle will allow us to probe all main solar-wind states with nearly constant cometary parameters. We will analyze the evolution of the spectrum over time, systematically relating changes of line fluxes with variations in the velocity, density, and freeze-in temperature. We will look for the presence of emission features between 1-2 keV and use time-resolved spectra to determine whether individual exposures can be associated with solar flares. NICERs combination of high sensitivity and rapid follow capabilities make it uniquely suitable for our science goals.
6223	1ES 1927+654: CONSTRAINING THE POST-OUTBURST STATE OF AN EXTREME NUCLEAR TRANSIENT	MEGAN MASTERSON	1ES 1927+654 is a paradigm-defying AGN and one of the most peculiar X-ray nuclear transients. During a recent, multi-year outburst, 1ES 1927+654 underwent extreme X-ray spectral changes, including the first-observed destruction and recreation of the X-ray corona, possibly due to a TDE in an AGN accretion disk. Despite rebuilding its corona, this unique AGN still appears softer and with different variability properties than its pre-outburst state. With continued NICER monitoring, we will study the X-ray and UV variability and monitor X-ray spectral changes to assess the post-outburst nature of this NICER legacy target. We propose a one year monitoring campaign with a weekly 1 ks NICER observation and a 1 ks Swift observation every 2 weeks (totaling 52 ks with NICER and 26 ks with Swift).
6224	NICER STUDIES OF AGN CLOUD OCCULTATION EVENTS DETECTED WITH EROSITA	MIRKO KRUMPE	Understanding the sub-structure of the torus in AGN is requisite for understanding the radiative and mechanical processes occurring in AGN central engines, and recent works point to tori composed of clumps. eROSITA performs multiple all-sky X-ray surveys, including monitoring the brightest ~80 AGN for spectral changes. eROSITA is thus in a position to detect rare transits of torus clouds across the line of sight. For up to 2 objects, we request ToO campaigns consisting of 7 visits each, with each visit 10 ks (total request of 140 ks), to systematically trace the smoothness of torus clumps and illuminate the sub-structure of clumpy tori in AGN.
6230	RADIO, OPTICAL, AND X-RAY MONITORING OF NEARBY FRB	WALID MAJID	This proposal aims to address fundamental questions regarding the origins of fast radio bursts (FRBs) by carrying out simultaneous observations of the closest extragalactic FRB with NICER and a brand new and unique hybrid instrument that is capable of observing at both radio and optical wavelengths.

Prop #	Title	PI Name	Abstract
6236	IDENTIFYING THE COUNTERPARTS OF ASTROPHYSICAL NEUTRINOS WITH NICER	MARCOS SANTANDER	We here propose a TOO program to characterize X-ray sources spatially coincident with high-energy astrophysical neutrino events broadcasted by IceCube to identify their electromagnetic counterparts. The program involves a prompt observation of the brightest sources in the neutrino region of interested, followed by a second exposure on those that indicate signs of variability.
6239	MONITORING TERZAN 6 TO CATCH A POSSIBLE TRANSITIONAL MILLISECOND PULSAR	JEROEN HOMAN	We have recently identified a candidate transitional millisecond pulsar (tMSP) in the globular cluster Terzan 6. This source, X2, usually has luminosities between 2.5e33 and 6e34 erg/s. However, RXTE monitoring of the cluster suggests that in rare instances the source enters an outburst state (>1e36 erg/s). During one of these outburst states indications for the presence of X-ray pulsations were seen in a very short RXTE observation. Here we propose a NICER monitoring program of Terzan 6 to catch X2 in an outburst state and confirm the presence of pulsations. We request 114 (0.5 ks) observations with a cadence of 2 days. Although the chances of catching an outburst are small (20% in Cycle 5), identification of X2 as a tMSP would add a valuable new member to a very small class of sources.
6240	A SEARCH FOR X-RAY COUNTERPARTS FROM REPEATING FAST RADIO BURST SOURCES IN THE LOCAL UNIVERSE	AARON PEARLMAN	Fast radio bursts (FRBs) are extragalactic pulses of radio emission, whose progenitor population is still unknown. We propose to carry out a high time resolution search for X-ray bursts from localized repeating FRB sources (with declinations > -11 deg that are visible with CHIME) using simultaneous X-ray/radio observations with NICER. 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 with the Effelsberg, Green Bank Telescope, and CHIME radio telescopes. We propose for a total of 100 ks of ToO observations to observe up to 5 repeating FRBs with low excess DMs when they display an outburst. These observations will be used to search for X-ray counterparts from FRBs in order to constrain their nature.

Prop #	Title	PI Name	Abstract
6243	FAST NICER FOLLOW-UP GAMMA-RAY BURSTS: SEARCHING FOR SIGNATURES MAGNETAR CENTRAL ENGINES	PETER VERES	We propose to uncover the periodic signature of magnetars by observing the early afterglows of Swift GRBs. In particular we plan NICER observations of the X-ray plateau, a common early feature in the X-ray afterglows. During the plateau phase the decay of the lightcurve becomes shallower, and could be approximately constant for up to an hour. The plateau is possibly related to energy injection by magnetars that imprint periodic signatures on the lightcurve. If successful, NICER would probe the early (less than an hour after the GRB) afterglow using its unprecedented timing and spectral sensitivity opening up a new avenue to study GRB afterglows. Even a non-detection of periodicity would lead to the tightest constraints for the magnetar central engine.
6245	TRACKING THE X-RAY EVOLUTION OF ON-GOING SDSS-V CHANGING-LOOK AGN	MIRKO KRUMPE	SDSS-V, currently ramping up to full operation, will obtain repeated optical spectroscopy for thousands of AGN. This will allow for the optical identification of currently transiting changing-look AGN. We request 5 ToOs each totaling 60 ks (2 ks roughly every 4 days for 120 days) to explore how the X-ray corona, UV/optical accretion disc, and broad-emission line region interact with each other. The NICER data will also deliver several spectra over the proposed 120 day time period, which will be used to constrain the evolution of the photon index. This data set, combined with high-cadence optical monitoring & spectroscopy, will give valuable insights into how accretion flows evolve during AGN ignitions and depletions.