

The selected proposals with approved observations:

(1) Core proposals

Title	致密天体高能辐射性质研究 1				
ABSTRACT	<p>核心提案基于慧眼的宽波段观测优势，以及目前慧眼已经积累的观测数据，在宽能区研究致密天体高能辐射性质，在爆发源和持续亮源等方面预期开展一系列的观测和研究，具体包括：X 射线双星爆发的时变、能谱以及态演化的研究；大质量 X 射线双星爆发有关极冠区的吸积辐射机制、辐射区几何以及回旋吸收研究；热核暴探针研究；Z 和 atoll 源的演化的研究。提案包括常规的定点观测以及 ToO 观测，这些观测一部分作为已有慧眼相关源研究的观测补充，也可能通过 ToO 观测给出新现象的发现。观测的实施将有助于推进不同类型 X 射线双星的辐射机制等方面的研究。</p>				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note

P0401014	Cyg_X-1	360	A	YES	
P0401192	Cyg X-3	170	B	NO	
P0401193	GRS 1915+105	170	B	NO	
P0401245	SAX J2103.5+4545	120	A	YES	
P0401256	Cyg X-1	170	B	NO	
P0404194	1A 0535+26	120	A	YES	
P0404195	1A 1118-615	120	A	YES	
P0404196	2S 1417-624	120	A	YES	
P0404197	2S 1553-542	120	A	YES	
P0404198	2S 1845-024	120	A	YES	
P0404199	3A 0114+650	120	A	YES	

P0404200	4U 0115+634	120	A	YES	
P0404201	4U 1538-52	120	A	YES	
P0404203	MXB 1730-33	300	A	YES	
P0404205	Aql X-1	300	A	YES	
P0404206	4U 1636-53	300	A	YES	
P0404207	4U 1608-52	300	B	YES	
P0404208	GX 9+1	100	A	YES	
P0404209	GX 3+1	100	A	YES	
P0404210	Cyg X-2	300	A	YES	
P0404211	Cir X-1	200	A	YES	
P0404212	XTE J1701-462	100	A	YES	

P0404213	XTE J0658-073	120	A	YES	
P0404214	MXB 0656-072	120	A	YES	
P0404215	GRO J2058+42	120	A	YES	
P0404217	RX J0440.9+4431	120	A	YES	
P0404218	4U 1901+03	120	A	YES	
P0404219	Ginga_0834-430	120	A	YES	
P0404220	GRO J1750-27	120	A	YES	
P0404221	KS 1947+300	120	B	YES	
P0404222	GRO J1008-57	120	A	YES	
P0404223	EXO_0331+530	120	A	YES	
P0404224	EXO 2030+375	120	B	YES	

P0404225	GRO J1744-28	120	A	YES	
P0404226	4U 1700-377	120	A	YES	
P0404227	Swift J0243.6+6124	120	A	YES	
P0404228	4U 1907+09	120	A	YES	
P0404229	XTE J1829-098	120	A	YES	
P0404230	4U 1822-371	120	A	YES	
P0404231	IGR J18027-2016	120	A	YES	
P0404232	IGR J17544-2619	120	A	YES	
P0404233	IGR J16393-4643	120	A	YES	
P0404234	SWIFT J1626.6-5156	120	A	YES	
P0404235	4U 2206+54	120	A	YES	

P0404236	GX 304-1	120	A	YES	
P0404237	SWIFT_J1845.6+0051	120	A	YES	
P0404238	XMMU J054134.7-682550	120	A	YES	
P0404239	4U 1908+075	120	A	YES	
P0404240	MAXI J1409-619	120	A	YES	
P0404241	Swift J0513.4-6547	120	A	YES	
P0404242	Cep X-4	120	A	YES	
P0404243	IGR J18179-1621	120	A	YES	
P0404244	RX J0209.6-7427	120	A	YES	
P0404246	XTE J1946+274	120	A	YES	
P0404247	XTE J1858+034	120	D	YES	

P0404248	XTE J1858+034	120	A	YES	
P0404249	IGR J19294+1816	120	A	YES	
P0404250	GX 1+4	120	A	YES	
P0404251	4U 1626-67	120	A	YES	
P0404252	Her X-1	120	A	YES	
P0404253	Cen X-3	100	A	YES	
P0404254	GX 301-2	200	A	YES	
P0404255	Vela X-1	200	A	YES	
P0404257	Swift J1728.9-3613	150	A	YES	
P0404258	H 1743-322	150	B	YES	
P0404259	XTE J1752-223	150	A	YES	

P0404260	EXO 1846-031	150	A	YES	
P0404261	XTE J1650-500	150	A	YES	
P0404262	V404 Cyg	150	A	YES	
P0404263	4U 1630-472	150	B	YES	
P0404264	4U 1543-47	150	A	YES	
P0404265	XTE J1817-330	150	B	YES	
P0404266	XTE J1859+226	150	B	YES	
P0404267	GX 339-4	150	B	YES	
P0404268	MAXI J1631-479	150	A	YES	
P0404269	MAXI J1348-630	150	B	YES	
P0404270	XTE J1550-564	150	B	YES	

P0404271	GRO J1655-40	150	B	YES	
P0404272	new source 3	600	A	YES	
P0404273	MAXI J1535-571	150	A	YES	
P0404274	new source 2	600	A	YES	
P0404275	new source 1	600	A	YES	
P0404276	MAXI J1820+070	150	A	YES	
Title	致密天体高能辐射性质研究 2				
ABSTRACT	<p>核心提案基于慧眼的宽波段观测优势，以及目前慧眼已经积累的观测数据，在宽能区研究致密天体高能辐射性质，在爆发源和持续亮源等方面预期开展一系列的观测和研究，具体包括：X 射线双星爆发的时变、能谱以及态演化的研究；黑洞基本参数测量相关方向的研究；大质量 X 射线双星爆发有关极冠区的吸积辐射机制、辐射区几何以及回旋吸收研究；热核暴研究；Z 和 atoll 源的演化的研究；探索 QPO 的普适模型等。提案包括常规的定点观测以及 ToO 观测，这些观测一部分作为已有慧眼相关源研究的观测补充，也可能通过 ToO 观测给出新现象的发现。观测的实施将有助于推进不同类型 X 射线双星的吸积流结构、辐射机制等方面的研究。</p>				

Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0401015	4U 0614 91	300	A	YES	
P0401016	SGR 1935 2154	1000	A	YES	
P0401017	SGR 1830-0645	1000	A	YES	
P0401018	IGR J17533-2928	1000	A	YES	
P0401019	SRGA J181414.6-225604	1000	A	YES	
P0401020	Swift J174038.1-273712	1000	A	YES	
P0401021	MAXI J0903-531	1500	A	YES	
Title	Galactic Plane Scanning Survey with Insight-HXMT				

<p style="text-align: center;">ABSTRACT</p>	<p>Hard X-ray Modulation Telescope (Insight-HXMT), the first Chinese X-ray space telescope launched on June 15, 2017, has three telescopes with different energy bands, i.e., High Energy X-ray Telescope (HE: 20-250 keV), Medium Energy X-ray Telescope (ME: 5-30 keV), and Low Energy X-ray Telescope (LE: 1-15 keV). Galactic plane scanning survey is one of the most important missions of Insight-HXMT, which will take about 1/3 of the total observation time of Insight-HXMT. Thanks to the large efficient area and narrow field of view in hard X-ray band, Insight-HXMT has more capabilities than any other X-ray telescope to make the Galactic plane scanning survey of weak variable sources, and will give us the deepest and highest frequency census of the Galactic hard X-ray variable sources. With the Galactic plane scanning survey, Insight-HXMT can make longterm monitoring of many variable X-ray sources (e.g., accreting black holes and neutron stars), by obtaining their light-curves at different time scales, as well as finding some new X-ray sources. In addition, taking advantages of the good energy resolution of Insight-HXMT/LE and the high frequency of scanning, we can obtain the high-precision spectra of diffuse background in different regions of Galactic plane, and construct a sky map of the Galactic diffuse background</p>				
<p style="text-align: center;">Special requirement</p>					
<p style="text-align: center;">Obs No.</p>	<p style="text-align: center;">Target</p>	<p style="text-align: center;">Exp. Duration</p>	<p style="text-align: center;">Grade</p>	<p style="text-align: center;">ToO?</p>	<p style="text-align: center;">Note</p>

P0401295	SAS_080727-322632_7.00	_	A	NO	
P0401296	SAS_230431+600934_7.00		A	NO	
P0401297	SAS_091201-481946_7.00		A	NO	
P0401298	SAS_211201+481946_7.00		A	NO	
P0401299	SAS_110431-600934_7.00		A	NO	
P0401300	SAS_200727+322632_7.00		A	NO	
P0401301	SAS_135217-620201_7.00		A	NO	
P0401302	SAS_192318+150832_7.00		A	NO	
P0401303	SAS_160428-522512_7.00		A	NO	
P0401304	SAS_184605-023632_7.00		A	NO	
P0401305	SAS_171929-371854_7.00		A	NO	

P0401306	SAS_180745-201724_7.00		A	NO	
P0401307	SAS_164658-451446_7.00		A	NO	
P0401308	SAS_150715-581751_7.00		A	NO	
P0401309	SAS_122548-624332_7.00		A	NO	
P0401310	SAS_100000-550259_7.00		A	NO	
P0401311	SAS_083553-403949_7.00		A	NO	
P0401312	SAS_074354-235325_7.00		A	NO	
P0401313	SAS_070422-061713_7.00		A	NO	
P0401314	SAS_062731+112919_7.00		A	NO	
P0401315	SAS_190439-045817_7.00		A	NO	
P0401316	SAS_182735-001346_7.00		A	NO	

P0401317	SAS_184629-135203_7.00		A	NO	
P0401318	SAS_180853-090203_7.00		A	NO	
P0401319	SAS_182728-224451_7.00		A	NO	
P0401320	SAS_174841-174156_7.00		A	NO	
P0401321	SAS_180627-313242_7.00		A	NO	
P0401322	SAS_172550-260812_7.00		A	NO	
P0401323	SAS_174147-401004_7.00		A	NO	
P0401324	SAS_165852-341312_7.00		A	NO	
P0401325	SAS_171053-482751_7.00		A	NO	
P0401326	SAS_162543-414502_7.00		A	NO	
P0401327	SAS_162917-560926_7.00		A	NO	

P0401328	SAS_154339-482436_7.00		A	NO	
P0401329	SAS_060745+201724_7.00		A	NO	
P0401330	SAS_051929+371854_7.00		A	NO	
P0401331	SAS_064605+023632_7.00		A	NO	
P0401332	SAS_040428+522512_7.00		A	NO	
P0401333	SAS_072318-150832_7.00		A	NO	
P0401334	SAS_015217+620201_7.00		A	NO	
P0401335	SAS_054537+285610_7.00		A	NO	
P0401336	SAS_044658+451446_7.00		A	NO	
P0401337	SAS_030715+581751_7.00		A	NO	
P0401338	SAS_002548+624332_7.00		A	NO	

P0401339	SAS_220000+550259_7.00		A	NO	
P0401340	SAS_203553+403949_7.00		A	NO	
P0401341	SAS_194354+235325_7.00		A	NO	
P0401342	SAS_190422+061713_7.00		A	NO	
P0401343	SAS_182731-112919_7.00		A	NO	
P0401344	SAS_174537-285610_7.00		A	NO	

(2) Guest proposals

Title	Studying Black Hole Transients in Outburst from Radio to Gamma-Rays	PI	Pierre-Olivier Petrucci
ABSTRACT	<p>We propose to perform a series of 20 Insight-HXMT observations, spaced by a few days and with exposures increasing from 10 to 50ks along the monitoring (to compensate the spectral softening), of a (new or known) microquasar during the hard to soft state transition. This monitoring will be performed in a multi-wavelength context through separate radio/gamma-ray programs. Our goal is to witness the high-energy evolution of a BH and the</p>		

	<p>connections to radio and gamma-ray properties to constrain the accretion/ejection processes in these objects. The combination of the spectral and temporal capabilities of Insight-HXMT, together with a multi-wavelength approach, will allow us to i) disentangle the different contributions to the broadband continuum emission, ii) reveal the relationship between the hard X/soft gamma-ray emission and the jet activity, iii) witness the state transition and its relation with major ejections, iv) follow the evolution of all these components in the different spectral states and v) probe the fast variability properties up several tens of keV. A similar proposal has been accepted in Cycle 2 and 3. It has been triggered recently for the 2021 outburst of GX 339-4, showing the pertinence of our strategy. We re-propose this project to catch another source in outburst.</p>				
Special requirement	coordinate with ATCA, INTEGRAL				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404093	XTE J1550-564	500	A	YES	
P0404095	IGR J17091-3624	500	A	YES	
P0404096	GX 339-4	500	A	YES	

P0404097	GRO J1655-40	500	A	YES	
P0404098	4U 1630-47	500	A	YES	
P0404351	Unknown LMXB	500	A	YES	
Title	低质量密近 X 射线双星 4U1820-30 的轨道演化监测		PI	禹升华	
ABSTRACT	<p>我们建议使用 Insight-HXMT 对极致密 X 射线源 4U1820-30 进行 12 次观测，每次观测 7000s（包含 ~10.2 个轨道周期），共 84000s，该观测结合我们的理论模型，可以获得双星轨道周期、质量、椭率、物质交流速率等参数演化，也可从观测推测 X 射线暴发对双星轨道、中子星吸积盘或白矮星物态的影响，进而对该双星引力波辐射信号做出预测。结合之前的观测，也允许我们研究该双星 X 射线暴的起因，和其对轨道演化的影响。该观测提案对研究 4U 1820-30 作为引力波定标源的性质有重要意义。</p>				
Special requirement					

Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405350	4U_1820-30	77	A	NO	
Title	吸积 X 射线脉冲星中 mHz QPO 研究和偏振联合观测			PI	Dr. LianTao
ABSTRACT	<p>吸积 X 射线脉冲星中 mHz QPO 的起源问题一直存在争议，获得宽能段、高统计和 高频次的观测数据对于检验 mHz 的理论模型进而理解吸积 X 射线脉冲星中的吸积辐射 过程至关重要。偏振观测是理解吸积 X 射线脉冲星的另外一个窗口，可以通过偏振观测 限制辐射区几何。慧眼卫星具有宽能段、大有效面积的特点，而极光计划是目前唯一在 轨运行的 X 射线偏振探测设备。本提案申请慧眼卫星 450ks 的 ToO 观测时间，与极光 计划联合观测 1 个吸积 X 射线脉冲星，研究其中 mHz QPO 的产生机制，并测量脉冲星 的偏振度，从时变和偏振两个角度理解这类特殊天体的辐射物理过程。候选源为 Swift BAT 上 flux 接近或超过 1 Crab，且存在 mHz QPO 的 3 个吸积 X 射线脉冲星（ V0332+53、EXO 2030+375、 GX 304-1），观测总时长为 450 ks。</p>				
Special requirement					

Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405189	GX 304-1	450	A	YES	
P0405190	EXO 2030 375	450	B	YES	
P0405191	EXO_0331+530	450	A ⁺	YES	
Title	基于慧眼和 NICER 联合观测的黑洞 X 射线双星不同功率谱成分快速转换的研究			PI	Dr. LiangZhang
ABSTRACT	<p>黑洞 X 射线双星多为暂现源，在爆发期间通常经历由硬态到软态的转换。态转换伴随着能谱和时变性质的快速变化，以及吸积流/喷流的结构和性质的演化。此外，黑洞 X 射线双星中存在不同时标的光变，在功率密度谱中可以分解出不同类型的准周期振荡现象（QPO）以及宽带噪声成分（Ingram et al. 2020）。其中某些源中存在不同功率谱成分的快速转换，例如不同类型 QPO 的转换（e.g. Sriram et al. 2013），和 QPO 快速消失/重现的现象（e.g. Huang et al. 2018）。这些快速转换往往对应双星在不同谱态间的演化，很可能与喷流的变化有关 (Homan et al. 2020)，对此研究可以帮助我们更好地理解谱态演化，QPO 和噪声的起源及喷流的性质等关键问题。本提案计划利用慧眼和 NICER 卫星对功率谱快速转换现象的联合观测，通过比较</p>				

	转换前后宽波段能谱的变化，研究快速转换的物理机制，QPO 的起源及触发条件，探讨吸积几何在转换期间的演化，对现有的 QPO 模型和演化模型提出限制；同时结合多波段观测，研究 X 射线时变性质与射电喷流之间的关系。				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405186	H 1743-322	300	A	YES	
P0405187	XTE J1859 226	300	A	YES	
P0405188	MAXI J1348-630	300	A	YES	
Title	基于盘冕散射和硬化因子修正研究黑洞 X 双星硬态的盘截断问题			PI	Dr.RuicanMa
ABSTRACT	黑洞 X 射线双星在爆发的硬态阶段，通常认为存在一个流量占比较低的吸积盘和一个流量占比较高的冕，但是此时，吸积盘是否截断一直存在争议。由于硬态的冕成分比较显著，会对盘成分的光子产生				

<p>强烈的散射，导致低估盘辐射进而低估盘半径。此外，在爆发初期，光学厚的吸积盘可能并未完全形成，而是处于从热冕凝聚成为吸积盘的过程中，硬化因子 f 在该过程中存在演化，所以使用固定的 f 硬化因子会导致盘半径估计不准。</p> <p>慧眼卫星具有宽能段和大有效面积的特点，可以很好的限制黑洞 X 射线双星的盘和冕成分，进而研究硬化因子 f 的演化。所以，本提案希望申请慧眼 HXMT 300ks 的 ToO 观测时间，对一个黑洞 X 射线双星强爆发源进行监测，获得爆发上升阶段硬态，中间态和软态的高统计观测数据，基于盘冕散射过程和硬化因子演化研究硬态期间吸积盘的截断问题。</p>					
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405183	GRO J1655-40	300	B	YES	
P0405184	XTE J1752-223	300	A	YES	
P0405185	V404 Cyg	300	A	YES	

Title	Searching for the electron-positron annihilation feature in a bright blackhole X-ray binary outburst			PI	Dr.JianLi
ABSTRACT	<p>Electron-positron annihilation feature has been long expected in blackhole X-ray binaries (BHXRBS). However, a significant detection was never conclusively reached. We propose a 500 ks ToO observation of BHXRBS outburst with a flux level of 5 Crab, searching for the electron-positron annihilation feature. With the large effective area and suitable energy coverage, HXMT/HE represents the most appropriate instrument for this aim. The proposed observation will lead to the first confirmed detection of the electron-positron annihilation feature from point sources, providing solid observational results to test theory predictions and explain the electron-positron annihilation radiation in our Galaxy bulge region.</p>				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404182	Blackhole X-ray binary outburst	500	A	YES	
Title	利用慧眼卫星研究 I 型暴在 NS-LMXB 4U 1636-53 中的发生规律和随能态演化机制			PI	Dr.GuobaoZhang

<p style="text-align: center;">ABSTRACT</p>	<p>低质量中子星 X 射线双星(NS-LMXB) 4U 1636-53 是一颗典型的 Atall 源，在 Color-color Diagram (双色图)上展现类似 C 形状的能谱演化图案。这颗源在不同的能谱态都观测到了 I 型 X 射线暴。I 型暴强度，形状以及爆发长度随源吸积率的演化也随之改变。多峰结构的 I 型暴和 mHz QPO 也多次出现在这颗源中，使得 4U 1636-53 成为研究 I 型暴的绝佳 X 射线源。本提案将基于慧眼-HXMT 对 4U 1636-53 进行高统计观测，通过研究高能 X 射线在不同能谱态下对 I 型暴的影响，找出 I 型暴在这颗源中产生随能谱演化的规律。通过更宽波段的观测，进一步研究 mHz QPO 以及多峰结构 I 型暴产生的物理机制。</p>				
<p style="text-align: center;">Special requirement</p>					
<p style="text-align: center;">Obs No.</p>	<p style="text-align: center;">Target</p>	<p style="text-align: center;">Exp. Duration</p>	<p style="text-align: center;">Grade</p>	<p style="text-align: center;">ToO?</p>	<p style="text-align: center;">Note</p>
<p style="text-align: center;">P0405181</p>	<p style="text-align: center;">4U 1636-53</p>	<p style="text-align: center;">360</p>	<p style="text-align: center;">C</p>	<p style="text-align: center;">NO</p>	
<p style="text-align: center;">Title</p>	<p style="text-align: center;">研究中子星 X 射线双星中吸积盘反射与 kHz QPOs 的联系</p>			<p style="text-align: center;">PI</p>	<p style="text-align: center;">Dr.YananWang</p>
<p style="text-align: center;">ABSTRACT</p>	<p>在中子星 X 射线双星中发现的 kHz QPOs 高频频率，与该系统中的内部吸积流的轨道频率相吻合的。由于吸积盘反射过程主要发生在吸积盘内部且该过程对应的延迟为软延迟，因而人们认为在 kHz QPOs 频</p>				

	<p>率上探测到的软延迟可能来源于此过程。4U 1608-52 是目前少有既有 kHz QPOs 又有盘反射存在的源。鉴于这两者都主要存在于爆发的流量上升的阶段，申请人因而提议对目标源 4U1608-52 的在此阶段进行密集观测。</p>				
Special requirement	Coordinate with NICER				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404180	4U 1608-522	250	A	YES	
Title	利用 X 射线暴研究 X 射线双星的吸积物理过程			PI	Dr.Yu-PengChen
ABSTRACT	<p>X 射线暴是发生在 X 射线双星系统中秒量级的耀发，其最高光度可达爱丁顿光度。发生在中子星表面的热核爆被称为一型 X 射线暴，RXTE 卫星最早发现了热核爆期间引力能辐射的变化，NICER 和 Insight-HXMT 在单个热核暴中确认了热核暴期间引力能辐射强度可以增加近十倍，但都基于引力能辐射谱形不变这一前提，而这一前提和热核暴期间硬 X 射线辐射缺失这一现象矛盾。这一矛盾可能通过 NICER 和 Insight-HXMT 的联合观测得以解决，利用这两个卫星在软 X 射线和硬 X 射线能段的联合观测，给出暴期间吸进能谱形的变化，以此给出热核暴对吸积环境的影响。二型 X 射线暴有着更频繁的暴发频率和更复杂的</p>				

<p>光变能谱特性，在黑洞双星和活动星系核中发现的硬 X 射线延迟也在中子星系统的二型 X 射线暴中被发现（Chen et al 2021），可能代表着在跨越致密性系统和数量级质量的系统中有着的相同的辐射机制，通过慧眼的高频观测和其他卫星的联合观测，可能给出在硬 X 射线延迟现象中三类系统的共同的辐射机制。</p> <p>目前，GECAM 卫星发现了数十个热核暴候选体，通过定位和暴频确认了其中一个热核暴来源于 4U 0614+09，和 Swift/BAT 的观测一起第一次确认了该源的自旋频率。依靠 GECAM 的大视场，将能看到更多的热核暴，给出其统计特征，尤其是引力能和核能的释放能量之比，将能限制吸积物质组成和外流的多少等。</p>					
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405172	Rapid Burster(MXB 1730-33)	300	A	YES	
P0405173	4U 0614 91	300	B	YES	
P0405174	Cyg X-2	300	A	YES	

P0405175	4U 1820-303	300	A	YES	
P0405176	4U 1728-34	300	A	YES	
P0405177	Aql X-1	300	C	YES	
P0405178	4U 1636-53	300	C	YES	
P0405179	4U 1608-52	300	B	YES	
Title	重返硬态的 clocked burster 研究			PI	Dr.LongJi
ABSTRACT	<p>GS 1826-238 是低质量 X 射线双星系统，由于存在准周期性的 X 射线暴，被称为 clocked burster。该源的爆发演化与大多数源不同，长期处在较为稳定的状态。该源在 2014 年前处在“硬态”，随后进入了一个反常状态，与常见的“中间态”类似。申请人建议在该源重新回到“硬态”后，进行 36ks 的连续定点观测。提案类型为 ToO，触发标准为 Swift/BAT 流量大于 100mCrab。申请人拟通过该源的宽波段能谱、X 射线暴形态与等待时标，研究不同吸积率情况下的盘-冕结构，以及 X 射线暴的点火理论。</p>				

Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404171	SWIFT_J1829.5-2347	36	A	YES	
Title	BLACK HOLES TRANSITIONS: Insight-HXMT AND MULTIWAVELENGTH			PI	Dr.QingcuiBu
ABSTRACT	<p>Throughout the Universe, the physics governing inflowing material onto astronomical objects is connected to outflowing material from the same objects, from protoplanetary disks, close binaries to supermassive black holes. Despite decades of research, fundamental questions remain unanswered: what fractions of accretion mass and energy are released into the local environs by jets; and how does the accretion process lead to the launching of jets? Simultaneous multi-wavelength observations are the optimal tool that exposes this view. However, these campaigns (connecting the evolving accretion inflow and jet outflow) have been rarely achieved. We request a ToO consisting of three 10 ks insight-HXMT visits of a BHXB separated by one day intervals as it transitions from the hard to the soft state to complement NICER/INTEGRAL coverage. The monitoring of this source would last for 10 days. Our target list contains 5 candidates. We target the transition to reveal both the rapid orbit-to-orbit X-ray variability and the slower X-ray variability that characterize the significantly changing accretion disk (derived from Xray spectra and timing).</p>				

Special requirement	One of the five sources will be triggered if scientifically justified.				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405166	H 1743-322	300	A	YES	
P0405167	MAXI J1348-630	300	A ⁺	YES	
P0405168	GX 339-4	300	A	YES	
P0405169	MAXI J1535-571	300	A ⁺	YES	
P0405170	MAXI J1820 070	300	A ⁺	YES	
Title	黑洞暂现源反响映射观测提案申请			PI	Dr.微于

ABSTRACT	低质量 X 射线双星的吸积盘演化模型至今仍有很大争议，而以往这方面的研究通常依赖于能谱拟合。利用慧眼卫星的宽能段观测数据，通过反响映射的研究方法，将有助于我们从时变的角度探索吸积盘的结构和演化。				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405162	MAXI J1535-571	300	A	YES	
P0405163	GX 339-4	300	B	YES	
P0405164	MAXI J1348-630	300	B	YES	
P0405165	MAXI J1820 070	300	A	YES	
Title	Understanding states and state transitions in black hole X-ray binaries through monitoring of Cygnus X-1			PI	Dr.VictoriaGrinberg

<p style="text-align: center;">ABSTRACT</p>	<p>Black hole X-ray binaries change between different accretion and emission regimes, the so-called states. While it is clear that states correspond to different accretion geometries - configurations of jets, accretion disk, corona and accretion disk winds - neither the exact morphology of the accretion/ejection flows nor what triggers state transitions is clear. In particular, the origin of the hard emission (corona or jets?) remains a mystery.</p> <p>We propose a monitoring of the prototypical black hole X-ray binary Cygnus X-1 in order to trace the behavior of the different source component through different states, with a particular focus on energy-dependent timing studies and HXMT's unique capabilities to measure variability at high energies and unique broadband energy coverage. Cygnus X-1 is a persistent source that often crosses the so-called jet-line between the hard and soft state where the most dramatic changes in accretion geometry are thought to take place. It is thus best suited for such monitoring. We emphasize that this proposal is a continuation of a successful proposal from AO3. Unfortunately, all the AO3 observations were made within 7 weeks, so that we re-propose with emphasis on the monitoring approach. [196 words]</p>				
<p>Special requirement</p>					
<p>Obs No.</p>	<p>Target</p>	<p>Exp. Duration</p>	<p>Grade</p>	<p>ToO?</p>	<p>Note</p>
<p>P0405161</p>	<p>Cyg X-1</p>	<p>180</p>	<p>B</p>	<p>NO</p>	

Title	利用 X 射线和射电高时间分辨观测限制微类星体喷流的性质			PI	Dr.Zhen Yan
ABSTRACT	<p>最近几年，多波段快速光变成为研究微类星体吸积和喷流物理的一个非常重要的手段。微类星体的射电辐射主要来自于喷流，利用射电波段的快速光变以及它们同 X 射线快速光变的相关关系，进而可以研究吸积对于喷流的作用，喷流结构和运动等科学问题。本提案计划利用慧眼协同地面射电望远镜阵列（EVN/VLA）开展针对明亮微类星体的高时间分辨联合观测，获取同时的射电和 X 射线波段的快速光变特征，利用不同波段的光变特征以及时延测量喷流的性质，并且高分辨率的射电图像也能对喷流的性质做出限制，结合两者的优势进而研究喷流和吸积的相互作用以及喷流物理。</p>				
Special requirement	Coordinate with radio telescopes				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405158	Cyg X-3	10	A	NO	
P0405159	Cyg X-1	10	A	NO	

P0405160	GRS 1915 105	10	A	NO	
Title	A NICER Insight into Black Hole X-ray Binary Outbursts in the 0.5–250 keV Band			PI	Dr.JiachenJiang
ABSTRACT	<p>We request a monitoring program of one of six black hole (BH) transients with low Galactic reddening when in outburst, consisting of 20 Insight-HXMT observations each with 20 ks exposure. Our observations will be triggered by the MAXI and Swift-BAT monitoring program and will be taken simultaneously with already approved NICER ToO observations. With our proposed observations, we will be able to study the inner accretion process during an outburst in the 0.5–250 keV band. Particularly, 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.</p>				
Special requirement	Coordinate with NICER				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405152	XTE J1817-330	400	A	YES	

P0405153	MAXI J1659-152	400	A	YES	
P0405154	XTE J1859 226	400	A ⁺	YES	
P0405155	SWIFT J1753.5-0127	400	A	YES	
P0405156	XTE J1118 480	400	A	YES	
P0405157	1A 0620-00	400	A	YES	
Title	中子星 X 射线双星爆发期间不同能谱成分的演化关系			PI	Dr.Shan-ShanWeng
ABSTRACT	<p>中子星 X 射线双星 (NSXRBs) 与黑洞 X 射线双星 (BHXRBS) 在许多观测特性上类似。但由于中子星存在硬表面, 它产生的黑体辐射甚至超过吸积盘的贡献, 某些观测性质有别于 BHXRBS, 也更复杂。此前, 我们通过分析黑洞 X 射线双星 MAXI J1348-630 的慧眼数据, 理解该系统中观测到的“迟滞效应”形成机制。而至今人们仅在少数 NSXRBs 中观测到“迟滞效应”。为了理解两类系统的这一差异, 本项目建议慧眼卫星对 NSXRBs 的爆发过程进行高频次监测。利用其宽波段观测数据, 我们将分解不同能谱成分,</p>				

	分析它们随时间演化及相互间联系。这些观测信息将帮助我们理解 NSXRBs 中的吸积物理，特别是中子星表面辐射对周围吸积流的反馈。				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405150	4U 1608-522	750	B	YES	
P0405151	Aql X-1	750	B	YES	
Title	Simultaneous Insight-HXMT and AstroSat observations of Black Hole X-ray Binaries			PI	Dr.HonghuiLiu
ABSTRACT	<p>We propose coordinated Insight-HXMT and AstroSat observations of Cygnus X-1 and GRS 1915+105 with 90 ks exposure for each source. We aim to probe the different emission components of the X-ray binary systems through these observations in the broadband energy range of 0.3–250 keV. We are interested in modelling the time-lag and rms spectra of these sources using the stochastic propagation model extending our previous findings in the high-energy band. Our proposed observations would allow us to investigate the variability pattern and frequency components at high energy range (>100 keV). Besides, we would like to investigate the cross-calibration issues in</p>				

	the overlapping energy band of Insight-HXMT and AstroSat. Though these two sources have been observed by both the instruments on many occasions, a coordinated observation of these sources are either missing or the time overlap is short (2 ks). Our proposed coordinated observations of these sources may unveil many scientific curiosities and our understanding of the accretion-ejection paradigm.				
Special requirement	Coordinate with AstroSat				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0403148	GRS 1915 105	90	A	YES	
P0403149	Cyg X-1	90	A	YES	
Title	Hunting for cyclotron resonance scattering features in three accreting pulsars			PI	Dr.LorenzoDucci
ABSTRACT	We propose to observe two high-mass X-ray binaries (HMXBs) containing pulsars, EXO 2030+375 and KS 1947+300, to perform spectral and timing analysis with the main aim to search for cyclotron resonance scattering features (CRSFs) in their average and phase-resolved spectra. We will also exploit the broadband capabilities of Insight-HXMT to constrain the physical interpretations of the spectra observed, to study the pulse profile variability				

	and its energy and luminosity dependency, and to search for quasi-periodic oscillations in their power spectra. All these measurements will allow us to gain fundamental information to understand the accretion processes in these binary systems and in the broader context of the overall population of accreting pulsars in HMXBs.				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404146	KS 1947 300	200	A	YES	
P0404147	EXO 2030 375	100	B	YES	
Title	Prompt study of magnetar outbursts with Insight-HXMT			PI	Dr.FrancescoCoti Zelati
ABSTRACT	Magnetars are strongly magnetized neutron stars powered by the instabilities and decay of their huge magnetic field, 10^{14} - 10^{15} G. They show X-ray bursts (with luminosities of 10^{40} erg s ⁻¹), giant flares ($LX \sim 10^{46}$ erg s ⁻¹) and large outbursts where the steady X-ray luminosity ($LX \sim 10^{31}$ - 10^{35} erg s ⁻¹) increases by several orders of magnitude and then decays in months/year. Observations performed during such periods yield the largest amount of information on magnetars emission, allowing to test the theoretical models on a variety of phenomena and source states. We				

	propose here to follow one outburst from a known or new magnetar (one trigger) with Insight-HXMT to gather new physical insights on magnetars surface, field configuration and magnetosphere.				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404109	New magnetar	100	A	YES	
P0404110	SGR J1830-0645	100	A	YES	
P0404111	Swift J1818-1607	100	A	YES	
P0404112	1E 161348-5055.1	100	A	YES	
P0404113	PSR J1847-0130	100	A	YES	

P0404114	PSR J1814-1744	100	A	YES	
P0404115	PSR J1734-3333	100	A	YES	
P0404116	PSR J1819-1458	100	A	YES	
P0404117	PSR J1718-3718	100	A	YES	
P0404118	PSR J1119-6127	100	A	YES	
P0404119	SGR J0755-2933	100	A	YES	
P0404120	AX J1818.8-1559	100	A	YES	
P0404121	3XMM J1852 0033	100	A	YES	

P0404122	PSR J1622-4950	100	A	YES	
P0404123	SGR 2013 34	100	A	YES	
P0404124	AX J1844.8-0258	100	A	YES	
P0404125	PSR_J0526-6604	100	A	YES	
P0404126	CXOU J171405.7-3810	100	A	YES	
P0404127	CXOU J010043.1-721	100	A	YES	
P0404128	1RXS J170849.0-400910	100	A	YES	
P0404129	4U 0142 614	100	A	YES	

P0404130	GBS_1900+14	100	A	YES	
P0404131	1E 1841-04.5	100	A	YES	
P0404132	PSR_J1935+2154	100	A	YES	
P0404133	PSR_J1745-2900	100	A	YES	
P0404134	1E 1048.1-5937	100	A	YES	
P0404135	Swift J1834.9-0846	100	A	YES	
P0404136	Swift J1822.3-1606	100	A	YES	
P0404137	PSR_J1833-0831	100	A	YES	

P0404138	PSR_J0418+5732	100	A	YES	
P0404139	1E 1547.0-5408	100	A	YES	
P0404140	PSR_J0501+4516	100	A	YES	
P0404141	CXOU J164710.2-45521	100	A	YES	
P0404142	PSR_J1808-2024	100	A	YES	
P0404143	XTE J1810-197	100	A	YES	
P0404144	1E 2259 58.6	100	A	YES	
P0404145	SAX_J1635.8-4736	100	A	YES	

Title	A joint multi-wavelength search for activity from nearby active fast radio burst repeaters			PI	Dr.CristianoGuidorzi
ABSTRACT	<p>Fast Radio Bursts (FRBs) are radio bright, ms-long extragalactic transients of unknown origin that are the focus of a global multi-wavelength (MWL) community. The discovery that outbursting Galactic magnetars occasionally emit sub-energetic FRBs that fill in the gap with their extragalactic powerful siblings, makes a fundamental case for MWL campaigns aimed to constrain the nature of FRB sources. So far, about 20% of known sources were seen to repeat and are ideal targets for MWL observations. Benefiting from the increasing sample of FRBs and soon from the hundreds of FRBs to be announced by CHIME, we aim to use Insight-HXMT for a joint X-ray/radio/optical monitoring of nearby ($z < 0.1$ or, in the absence of a redshift estimate, $DME < 100 \text{ pc cm}^{-3}$) repeating FRBs (rFRBs) that become active. In particular, among the rFRBs currently known, we identified two very promising sources that match our requirements thanks to their favourable distance and/or radio active window: FRB20200120E, positionally compatible with M81 at 3.6 Mpc and with $DM=88 \text{ pc cm}^{-3}$, and FRB20201124A ($z=0.098$) which recently gave some of the brightest FRBs yet detected.</p>				
Special requirement	Coordinate with Sardinia Radio Telescope				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404107	FRB20200120E	100	A	YES	

P0404108	FRB20201124A	100	A	YES	
Title	黑洞暂现源转换态观测提案申请			PI	Dr.HexinLiu
ABSTRACT	对于黑洞暂现源，转换态时的能谱通常由盘和冕的辐射共同主导。在盘冕结构中主要存在 2 种模型，吸积盘截断和 lamppost 模型。在观测和理论模型中，吸积流几何的转换主要发生在转换态，包括硬转换态和软转换态。通过研究此状态辐射能谱和时变性质的变化，可以探索吸积流的结构及其演化。				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405099	GRS 1915 105	300	B	YES	
P0405100	GRO J1655-40	300	B	YES	
P0405101	XTE J1859 226	300	B	YES	

P0405102	XTE J1550-564	300	B	YES	
P0405103	GX 339-4	300	B	YES	
P0405104	H 1743-322	300	B	YES	
P0405105	MAXI J1348-630	300	B	YES	
P0405106	MAXI J1820 070	300	A	YES	
Title	Probing the accretion regimes in transient accreting pulsars			PI	Dr.PabloReig
ABSTRACT	<p>We request Insight-HXMT Target of Opportunity (ToO) observations of one transient accreting pulsar. We aim to obtain a sufficient number of high signal-to-noise snapshots of these kind of sources at different accretion states as they go through a giant X-ray outburst. Our principal goal is to study the timing and spectral parameters as a function of luminosity. This will allow us to test accretion models and characterize with unprecedented detail the X-ray spectral continuum at the two most important accretion regimes (super-critical and sub-critical). We will also test whether the complex and elusive critical luminosity can be estimated from the observations.</p>				

Special requirement	One of the six sources will be triggered if scientifically justified.				
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404087	EXO 2030 375	400	A	YES	
P0404088	XTE J1946 274	300	A	YES	
P0404089	KS 1947 300	320	A	YES	
P0404090	1A 1118-615	300	A	YES	
P0404091	EXO_0331+530	320	A	YES	
P0404092	4U 0115 63	300	A	YES	

Title	Testing prograde/retrograde disk scenario of torque reversal of OAO 1657-415			PI	Dr.纪认刘
ABSTRACT	<p>The spin-up and spin-down torque reversals of many X-ray pulsars are a long-standing puzzling phenomenon not well understood. The long-term spin history of X-ray pulsar OAO 1657-415 shows alternating steady spin-up and spin-down episodes on months timescale, which could be explained by alternate prograde/retrograde disk accretion. We propose to monitor the X-ray spectrum of OAO 1657-415 covering rapid spin-up, to compare with archival HXMT data covering rapid spin-down, in order to test the prograde/retrograde disk scenario in these two torque states. These observations will provide insights on the torque reversal and spin evolution of X-ray pulsars.</p>				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405086	SWIFT_J1700.8-4139	220	A	NO	
Title	Probing the low luminosity regime of wind accretion			PI	Dr.纪认刘
ABSTRACT	<p>While clean and simple, the low luminosity regime of wind accretion of X-ray pulsars are poorly explored. With archival 3.5 ks HXMT effective exposures of GX301-2 at low luminosity, we found spectral and timing differences</p>				

	above and below the cyclotron energy of GX301-2 from those at high luminosity. These observations have proved that HXMT is able to probe these low luminosity regime of wind accretion, partly due to the high energy excess at low luminosity, but the existing exposures are too limited. We propose 160 ks HXMT observation of GX301-2 at low luminosity to firmly establish the characteristics of wind accretion at low luminosity.				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405085	GX 301-2	160	A	YES	
Title	Monitoring the high-energy side of the periodic repeater FRB 20180916B through a joint multi-wavelength approach			PI	Dr.CristianoGuidorzi
ABSTRACT	<p>Fast Radio Bursts (FRBs) are radio bright, ms-long extragalactic transients of unknown origin that are the focus of a global multi-wavelength (MWL) community. Among the most promising candidates, magnetars occasionally undergo bursting high-energy activity that can be in excess of 10^{47} erg/s during the subsecond peak of a giant flare. The discovery of Galactic low-energy FRB20200428 emitted by SGR1935+2154 simultaneously with an X-ray burst provided further evidence for the magnetar-FRB connection. Among the 24 FRB repeaters currently known, not only is FRB20180916B (formerly known as FRB180916.J0158+65) one of the only two periodic sources (period of 16.35 days), but at 149 Mpc it is also among the nearest ones with measured distance. This combination brought it into the</p>				

	spotlight of coordinated MWL efforts to identify the nature of the progenitor. While no emission other than radio has been unambiguously associated with extragalactic FRBs yet, only an extensive coordinated MWL monitoring of FRB20180916B during the expected peaks of radio active windows, which builds on and extends the past campaign, can fully characterise a possible high energy source activity and try to identify the emission mechanism(s) among the several proposed.				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0403084	FRB20180916B	230	A	NO	
Title	Measuring the Broad Band X-ray Emission of Millisecond X-Ray Pulsars in Outburst			PI	Dr.ZhaoshengLi
ABSTRACT	We propose to perform ten 20 ks HXMT target of opportunity (ToO) observations of a transient millisecond X-ray pulsar in outburst. The target can be either one of the twenty known transient accreting millisecond X-ray pulsars (AMXPs) under going a new outburst, or a “newly” discovered object of this class. These observations will allow us to study the broad band spectrum in detail, from hard to soft X-ray energies, as well as the timing properties or eclipsing features of the source during its outburst. The high signal-to-noise spectral information will make it possible to disentangle the contributions of soft black body, reflection (if any), and hard Comptonized spectral components.				

	Moreover, we may detect type-I X-ray bursts, and/or for the first time also burst oscillations at high-energy (if present). The observations will also allow a timing analysis to study the pulse profile, time lags and pulsed spectrum, and will thus provide important constraints on emission mechanisms.				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0404062	New AMXP	200	A	YES	
P0404063	IGR J17494-3030	200	A	YES	
P0404064	IGR J17498-2921	200	A	YES	
P0404066	MAXI J0911-655	200	A	YES	
P0404067	IGR J17591-2342	200	A	YES	

P0404068	IGR J18245-2452	200	A	YES	
P0404069	IGR J17062-6143	200	A	YES	
P0404070	SWIFT_J1749.4-2807	200	A	YES	
P0404071	IGR J17511-3057	200	A	YES	
P0404072	SWIFT_J1756.9-2508	200	A	YES	
P0404073	HETE J1900.1-2455	200	A	YES	
P0404074	IGR J00291 5934	200	A	YES	
P0404075	IGR J17379-3747	200	A	YES	

P0404076	NGC 6440 X-2	200	A	YES	
P0404077	IGR J16597-3704	200	A	YES	
P0404078	SAX J1748.8-2021	200	A	YES	
P0404079	XTE J1814-338	200	A	YES	
P0404080	XTE J1807-294	200	A	YES	
P0404081	XTE J0929-314	200	A	YES	
P0404082	XTE J1751-305	200	A	YES	
P0404083	SAX J1808.4-3658	200	A	YES	

Title	Crab 和 J1846-0258 两颗脉冲星周期跃变和强磁场脉冲星暴发研究			PI	Dr.gemingyu
ABSTRACT	<p>通过射电和 Atel 信息，监测 Crab 和 J1846-0258 两颗脉冲星的周期跃变，已经可能的星云流量变化，详细研究脉冲星的周期跃变或者星云流量变化之后，脉冲星的计时特征、脉冲轮廓演化和制动指数的演化情况，研究脉冲星磁场变化的可能性。J1846-0258 存在类似磁星的暴发时，与 FAST 联合观测研究宽波段能谱演化和周期的规律以及与射电的变化行为。</p>				
Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0405060	PSR J1846-0258	200	A	YES	
P0405061	Crab	100	A	NO	
Title	磁星 X 射线爆发与快速射电暴的多波段机会目标 (ToO) 观测			PI	Dr.LinLin

<p style="text-align: center;">ABSTRACT</p>	<p>2020年4月28日，HXMT捕捉到来自的磁星 SGR J1935+2154 与快速射电暴成协的非热 X 射线爆发。证实了磁星爆发是快速射电暴的来源之一。而 FAST 没有探测到同一活跃期的 29 个 X 射线爆发的射电信号。说明磁星爆发产生射电辐射的条件非常严苛。事实证明 HXMT 得益于宽能段和高灵敏度是目前唯一可以区分磁星爆发辐射性质的观测设备。我们希望利用 HXMT 更多地观测磁星爆发活动尤其是联合 FAST 进行多波段联测，从而对磁星和快速射电暴的性质和起源进行更深入的研究。</p>				
<p style="text-align: center;">Special requirement</p>					
<p style="text-align: center;">Obs No.</p>	<p style="text-align: center;">Target</p>	<p style="text-align: center;">Exp. Duration</p>	<p style="text-align: center;">Grade</p>	<p style="text-align: center;">ToO?</p>	<p style="text-align: center;">Note</p>
<p style="text-align: center;">P0404012</p>	<p style="text-align: center;">PSR_J1935+2154</p>	<p style="text-align: center;">50</p>	<p style="text-align: center;">A</p>	<p style="text-align: center;">YES</p>	
<p style="text-align: center;">P0404022</p>	<p style="text-align: center;">new source 2</p>	<p style="text-align: center;">50</p>	<p style="text-align: center;">A</p>	<p style="text-align: center;">YES</p>	
<p style="text-align: center;">P0404023</p>	<p style="text-align: center;">new source 1</p>	<p style="text-align: center;">50</p>	<p style="text-align: center;">A</p>	<p style="text-align: center;">YES</p>	
<p style="text-align: center;">P0404024</p>	<p style="text-align: center;">LS I 61 303</p>	<p style="text-align: center;">50</p>	<p style="text-align: center;">A</p>	<p style="text-align: center;">YES</p>	

P0404025	PSR J0726-2612	50	A	YES	
P0404026	PSR J1718-3718	50	A	YES	
P0404027	PSR J1819-1458	50	A	YES	
P0404028	PSR J1119-6127	50	A	YES	
P0404029	1E 161348-5055	50	A	YES	
P0404030	SGR 1830-0645	50	A	YES	
P0404031	Swift J1818-1607	50	A	YES	
P0404032	SGR_2013+34	50	A	YES	

P0404033	AX J1845.0-0258	50	A	YES	
P0404034	AX J1818.8-1559	50	A	YES	
P0404035	SGR 1808-20	50	A	YES	
P0404036	SGR 1801-23	50	A	YES	
P0404037	SGR 0755-2933	50	A	YES	
P0404038	1E 2259 586	50	A	YES	
P0404039	GBS_1900+14	50	A	YES	
P0404040	3XMM J185246.6 003317	50	A	YES	

P0404041	1E 1841-045	50	A	YES	
P0404042	Swift J1834.9-0846	50	A	YES	
P0404043	PSR_J1833-0831	50	A	YES	
P0404044	Swift J1822.3-1606	50	A	YES	
P0404045	XTE J1810-197	50	A	YES	
P0404046	PSR_J1808-2024	50	A	YES	
P0404047	PSR_J1745-2900	50	A	YES	
P0404048	CXOU J171405.7-381031	50	A	YES	

P0404049	1RXS J170849.0-400910	50	A	YES	
P0404050	CXOU J164710.2-455216	50	A	YES	
P0404051	SAX_J1635.8-4736	50	A	YES	
P0404052	PSR J1622-4950	50	A	YES	
P0404053	1E 1547.0-5418	50	A	YES	
P0404054	1E 1048.1-5937	50	A	YES	
P0404055	PSR_J0526-6604	50	A	YES	
P0404056	PSR_J0501+4516	50	A	YES	

P0404057	PSR_J0418+5732	50	A	YES	
P0404058	4U 0142 61	50	A	YES	
P0404059	CXOU J010043.1-721134	50	A	YES	

(3) Calibration proposals

Title	慧眼-HXMT 在轨标定	PI	Prof. Xiaobo LI
ABSTRACT	<p>由于部分载荷的工作状态进行了调整，而且性能存在演化，因此慧眼的能量响应、有效面积、准直器响应等还需要持续的进行在轨标定。</p> <p>申请 2020 年度标定观测，具体为：对 Crab 定点观测 9 次，Cas A 定点观测 8 次，Tycho 定点观测 1 次，总观测时间 27 天。对 Crab 扫描观测 12 次，扫描区域半径 7 度，扫描间隔 0.1 度，扫描速度 0.06 度/s，扫描时间为 6 天，其中有效曝光时间为 3 天。</p>		

Special requirement					
Obs No.	Target	Exp. Duration	Grade	ToO?	Note
P0402345	SAS_053431 220054_7.00		A	NO	
P0402348	Cas A	691	A	NO	
P0402349	Crab	389	A	NO	
Title	The blank sky observations for the background research of insight-HXMT		PI	Dr. Jinyuan Liao	
ABSTRACT	<p>对于空天区的观测，是慧眼-HXMT 最重要的常规观测之一。其数据，将用于慧眼卫星的本底，标定，以及弥散辐射的研究。我们根据国际上其他卫星的观测，找出了 16 个空白天区，其特点是流量，谱形稳定。在本底构建方面，空天区的观测数据可以为高中低能三个载荷提供实测数据，开展本底的相关研究，以构建本底模型。在仪器标定方面，载荷自身的本底谱线，在空天区观测中具有最高的显著性，</p>				

	<p>可用于能量-能道关系的监测和标定。在 高能宇宙弥散背景方面，地球掩蚀前后的空天区观测数据的差异，是由弥散 X 射线导致。因此，空天区的观测对于高能宇宙弥散辐射同样意义重大。</p> <p>申请 2020-2021 观测季（1 年）的空天区观测 130 次，总曝光时间 2.2 Ms。</p>				
Special requirement					
P0401278	BLANK_SKY21	65	A	NO	
P0401280	BLANK_SKY20	65	A	NO	
P0401281	BLANK_SKY19	65	A	NO	
P0401282	BLANK_SKY16	65	A	NO	
P0401283	BLANK_SKY15	65	A	NO	
P0401284	BLANK_SKY14	65	A	NO	

P0401285	BLANK_SKY12	65	A	NO	
P0401286	BLANK_SKY11	65	A	NO	
P0401287	BLANK_SKY10	65	A	NO	
P0401288	BLANK_SKY8	65	A	NO	
P0401289	BLANK_SKY6	65	A	NO	
P0401290	BLANK_SKY5	65	A	NO	
P0401291	BLANK_SKY4	65	A	NO	
P0401292	BLANK_SKY3	65	A	NO	
P0401293	BLANK_SKY2	65	A	NO	
P0401294	BLANK_SKY1	65	A	NO	