A Web-Based Reference for Multimessenger Astronomy Instrumentation

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Introduction

* Multimessenger astronomy is dependent upon collaboration.
* Barriers to collaboration:
  1. Decentralization of information
  2. Information overload
  3. Less than optimal design
  4. Project Visibility
  5. Questionable Information

Decentralization of Information

* Pertinent information about a particular detector is found amongst a variety of sources.
* Centralizing information will encourage and speed up the collaborative process.

Information Overload

* Relevant information may be in one source, but is buried underneath pages of text.
* A computer's find function is not very useful if one does not know exactly what to search for.
  * Different projects use different terminology (e.g. time resolution vs. sampling rate).

Less than Optimal Design

* Certain layouts are more useful than others when searching for information.
* Websites that are simpler rather than detailed-oriented speed up the researching process.

Project Visibility

* Foreign projects can prioritize outreach to a lesser degree than the US.
* A comprehensive list of detectors gives projects more visibility and increases the opportunities for collaboration.

Questionable Information

- Information about detectors operational status, projected lifetime and detection range are frequently outdated.
  - For many projects maintaining updates is a challenge.
- Different sources have different values for the same thing.
  - It is very time consuming finding accurate values.

Solution

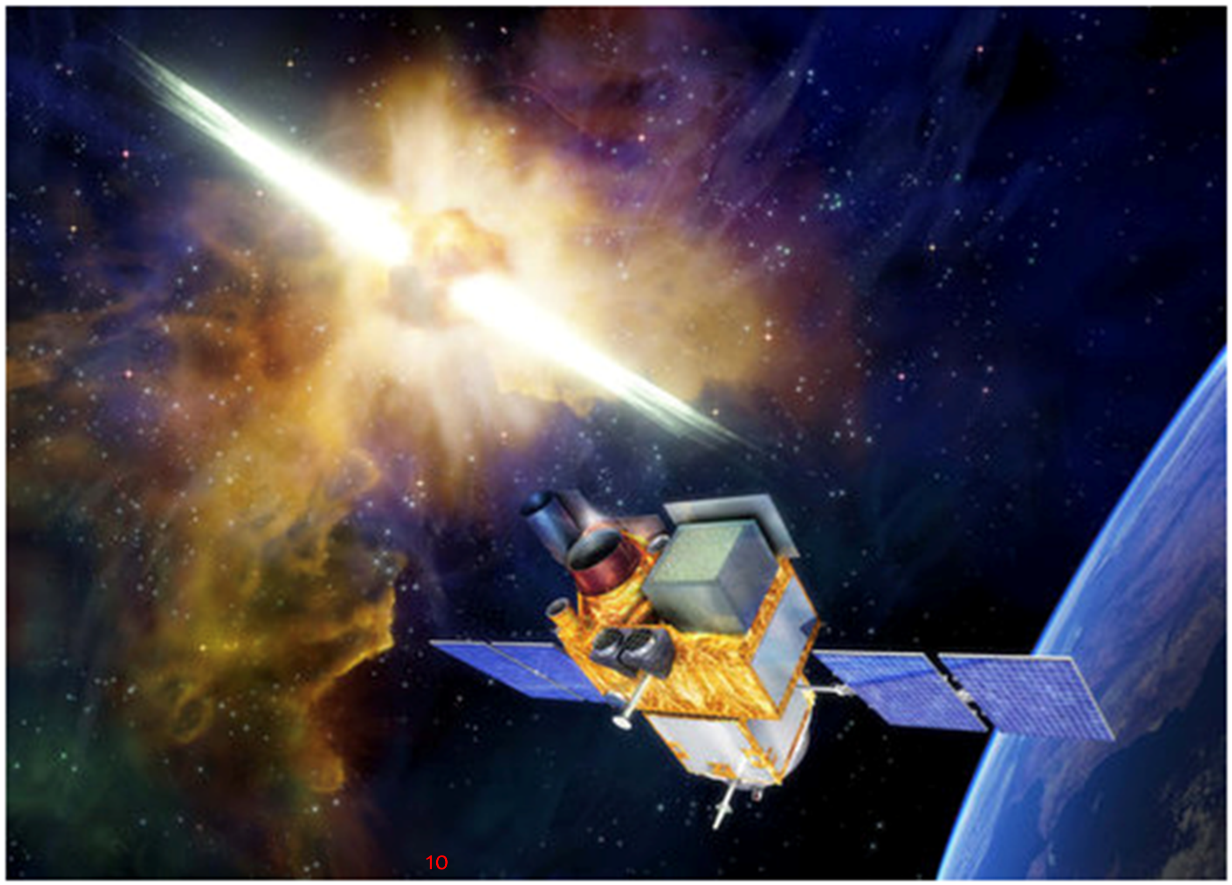
* Create a website with the following characteristics:
  1. Centralized
  2. Concise
  3. Simple and easy to use
  4. Comprehensive
  5. Accurate and Updated

Creation

* Based off of Google Docs
  * Easily updateable
  * Allows easy group editing
* Built from Dreamweaver in HTML
* Uses Tortoise SVN to store previous versions of the website

- Home
- X-Ray Telescopes
- Gamma Ray Telescopes
- Radio Telescopes
- Optical and Infrared Telescopes
- Neutrino Observatories
- Gravitational Wave Detectors
- Timeline
- Glossary
- Sources

Home



Project Name	Planned Lifetime	Project Detector(s)	Range of Detection	Time Resolution	Narrow Field or Wide Field Telescope	Time per Object	Open Observing Time	Comments
AGILE	2007 - ?	GRID	30 MeV - 50 GeV	~2 μs	Wide Field	1ms- 8s	Open Observing Time has been previously available via proposal	Starting from 2009 November, a permanent failure in the reaction wheel imposed a change in the observing mode, shifting from a "Narrow Fielded mode" to a "spinning mode". In spinning mode AGILE monitors about 80% of the sky during each orbit.
		Super-AGILE	18 - 60 keV	~4 μs	Wide Field	TBD		
		Mini-Calorimiter	300 keV - 100 MeV	~3 μs	Wide Field	TBD		
AGIS	Construction should start 2013-2014. Once it is complete it will run for at least 10 years.	100 IACTs	10 GeV - 100 TeV	TBD	Wide Field	TBD	Possibly	The AGIS collaboration has merged with CTA and the AGIS project is being integrated into the CTA work packages.
ASTROSAT	2013 - 2017	UVIT	130 - 180 nm, 180 - 300 nm, and 320 - 530 nm.	10 ms	TBD	30 min	Open observing time planned to begin one year after launch	Open observing time planned to begin one year after launch
		SXT	0.3 - 8.0 keV	0.3 s, 2.6 s, 1 ms	Narrow Field	0.5 - 1 day		
		LAXPC	3 - 80 keV	10 ms	Narrow Field	1 - 2 days		
		CZTI	10 - 150 keV	1 ms	Narrow Field	2 days		
		SSM	2 - 10 keV	1 ms	Wide Field	5 min		
ASTRO-H	2014 - ?	HXI/HXT	5 - 80 keV	several 10 μs	Narrow Field	TBD	Possibly; ESA has acquired OoT	
		SXS	0.3 - 12 keV	several 10 μs	Narrow Field	TBD		
		SXI	0.5 - 12 keV	4 sec	Narrow Field	TBD		
		SGD	10 - 600 keV	several 10 μs	Narrow Field	40 - 100 ks		
CANGAROO (III)	2004 - ?	Four 10m IACTs	GeV - TeV range	1 nsec	Wide Field	TBD		
CTA	construction starts in 2014;	Cherenkov Telescopes (High, Medium, and Low energy)		a few ns	Wide Field	TBD		It will consists of two arrays: a northern and southern. In a possible design scenario, the southern hemisphere array of CTA will consist of the three types of telescopes in order to cover the full energy range. The northern hemisphere array would consist of the two higher energy telescope types.

Project Name	Planned Lifetime	Project Detector(s)	Range of Detection	Time Resolution	Point or Survey Telescope	Time per Object	Open Observing Time	Comments
AGILE	2007 - ?	GRID	30 MeV - 50 GeV	~2 μs	Survey	1ms- 8s	Open Observing Time has been previously available via proposal	Starting from 2009 November, a permanent failure in the reaction wheel imposed a change in the observing mode, shifting from a "pointed mode" to a "spinning mode". In spinning mode AGILE monitors about 80% of the sky during each orbit.
		Super-AGILE	18 - 60 keV	~4 μs	Survey	TBD		
		Mini-Calorimiter	300 keV - 100 MeV	~3 μs	Survey	TBD		
AGIS	Construction should start 2013-2014. Once it is complete it will run for at least 10 years.	100 IACTs	10 GeV - 100 TeV	TBD	Survey	TBD	Possibly	The AGIS collaboration has merged with CTA and the AGIS project is being integrated into the CTA work packages.
ASTROSAT	2013 - 2017	UVIT	130 - 180 nm, 180 - 300 nm, and 320 - 530 nm.	10 ms	TBD	30 min	Open observing time planned to begin one year after launch	Open observing time planned to begin one year after launch
		SXT	0.3 - 8.0 keV	0.3 s, 2.6 s, 1 ms	Point	0.5 - 1 day		
		LAXPC	3 - 80 keV	10 ms	Point	1 - 2 days		
		CZTI	10 - 150 keV	1 ms	Point	2 days		
		SSM	2 - 10 keV	1 ms	Survey	5 min		
ASTRO-H	2014 - ?	HXI/HXT	5 - 80 keV	several 10 μs	Point	TBD	Possibly; ESA has acquired OoT	
		SXS	0.3 - 12 keV	several 10 μs	Point	TBD		
		SXI	0.5 - 12 keV	4 sec	Point	TBD		
		SGD	10 - 600 keV	several 10 μs	Point	40 - 100 ks		
CANGAROO (III)	2004 - ?	Four 10m IACTs	GeV - TeV range	1 nsec	Survey	TBD		

Project Name	Planned Lifetime	Project Detector(s)	Frequency Range	Comments
AIGO	2017 - ?	Michelson Interferometer (80m)	TBD	
AURIGA	1998 - ?	Resonant Bar Detector	~900Hz	
DECIGO	2025 - ?		0.1 - 10Hz	
EPTA			~nHz	Uses radio astronomy for pulsar timing which allows them to detect gravitational waves
	1972 - ?	The Effelsberg Radio Telescope	7 mm to 90 cm (0.395 to 95.5 GHz)	
	1957 - ?	The Lovell Radio Telescope	~1 - ~5 GHz	
	1965 - ?	NRT	1.1 - 3.5 GHz	
	2011 - ?	SRT	300 MHz - 100 GHz	
	1970 - ?	WSRT	120 MHz - 8.3 GHz	
ET	~2020		1 Hz - 10 kHz	Three interferometers in a triangular setting
EXPLORER	1986 - ?	Resonant Bar Antenna	Unavailable	Continuous operation since 2004
GEO600	1995 - ?	Michelson Interferometer (600m)	50Hz- 1.5kHz	By 2014 the interference will be reduced by a factor of about 10. LIGO has previously coordinated with GEO600.

1999
LIGO-Livingston

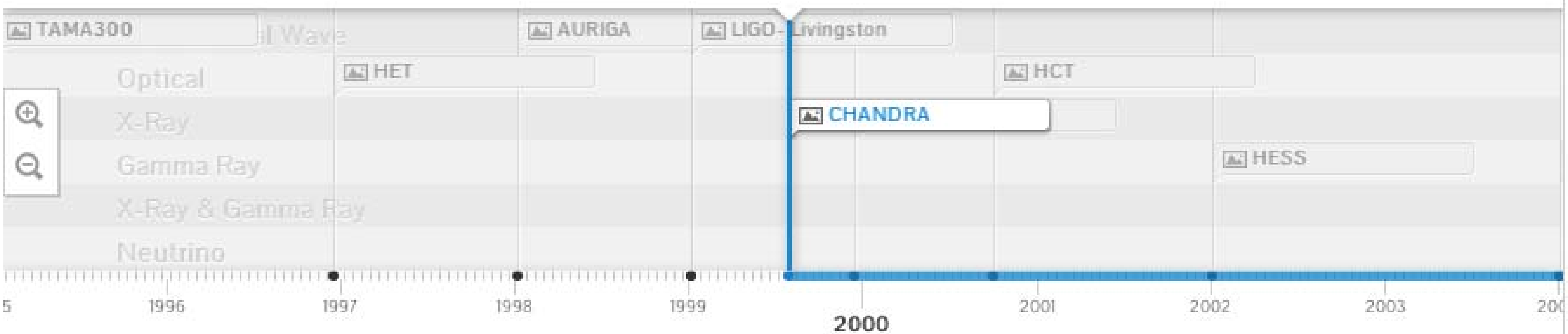
NASA/CXC/NGST

July 23, 1999 — 2022 X-Ray

CHANDRA

NASA's Chandra X-ray Observatory is a telescope specially designed to detect X-ray emission from very hot regions of the Universe such as exploded stars, clusters of galaxies, and matter around black holes. It will most likely stop collecting data sometime around 2022.

DECEMBER 10, 1999
XMM-Newton



Website Link

* Temporary website link:
  * rybchuk.com
* It will soon have a place on the LIGO page.