

The 2nd PANDA Symposium on Multi-messenger Astronomy

-- Jets and shocks in the Universe

Xi'an, China, April 22 to 26, 2013

First Announcement

***** SYMPOSIUM BACKGROUND *****

PANDA Symposia series are aiming at establishing and fostering collaborations among young post doctoral fellows (0-6 years from graduation) from the Pacific/Asiatic scientific community with their peers across the globe. Besides enabling scientific mobility and networking, we are also aiming in providing young researchers with a forum to exchange ideas on current and future projects. The Symposia should take place every 2-3 years and the first three should be held in China near Panda natural reserves.

The first PANDA Symposium was a great success. 23 astrophysicists from 9 foreign countries attended, as well as 78 astrophysicists from China. The Symposium was an outstanding international forum for discussion of various topics related to "Products of Astrophysical Outflows", and addressed some of the most exciting research frontiers of high-energy astrophysics. It provided many opportunities for Chinese researchers and advanced students to become acquainted with leaders in these fields and to present their own research results to an international audience.

We are confident that the 2nd PANDA Symposium will be an even greater success.

***** SCIENTIFIC RATIONALE *****

The Second PANDA Symposium will focus on multi-messenger Astronomy. Multi-messenger Astronomy combines detections of electromagnetic signals from astrophysical sources with high energy neutrinos, cosmic ray (particle) astrophysics and gravitational waves. This new era of Astrophysics is ushered in by current and planned facilities in space and on the ground. This decade has a plethora of observatories covering an unprecedented breadth in the electromagnetic spectrum: Fermi, Swift, XMM, Chandra, Hubble, Herschel, and Spitzer); Astro-H, NuSTAR, AstroSAT, HXMT and SVOM will be launched in the near future.

From the ground, radio observatories are being enhanced and upgraded (eVLA, eVLBI); ALMA and LOFAR will provide superb results in sub-mm and low radio-frequency astronomy. Pan-STARRS - the Panoramic Survey Telescope & Rapid Response System - is a wide-field

imaging facility being developed in Hawaii. The Palomar Transient Factory (PTF) has produced an onslaught of data for new sources. Cherenkov telescopes (HESS, MAGIC, and VERITAS) have opened a new window on particle acceleration; in the future CTA and HAWC will enhance and surpass these capabilities. The Pierre Auger Observatory is an international cosmic ray observatory designed to detect ultra-high-energy cosmic rays; it is the largest ultra-high energy cosmic ray detector in the world. The Laser Interferometer Gravitational Wave Observatory (LIGO) and Virgo (the French-Italian interferometric detector) have been collecting data since 2007, which are currently being analyzed. Finally, neutrino observatories have been built on almost every continent including Antarctica (ANTARES, ICECUBE, NESTOR, Gran Sasso, and Super Kamiokande, to name a few).

The combination of all these astrophysical tools provides a very powerful arsenal for the modern era astrophysicist. The synergetic exploitation of ground-based and satellite observatories uniquely enhances the potential for discoveries in transient and persistent sources in the Universe. These observations are poised to address fundamental physics and astronomy questions, such as: What is the nature of Cosmic Ray acceleration mechanisms? What are the mechanisms that produce jets and shocks in the Universe? Where are the neutrinos in supernova explosions? Which are the progenitors of Gamma-Ray Bursts and Magnetars?

*****SCIENTIFIC AGENDA*****

The 2nd PANDA Symposium aims to include experts in many of these areas. Like the first of its series it is organized in 4 days: the first day will have lectures from senior lecturers setting the stage on the subject matter with comprehensive reviews. The next three days are organized as independent mini-workshops in three scientific sub-areas. During these workshops, graduate students and young post-doctoral fellows will present their results on ongoing projects to their peers. A major goal of the PANDA series is to enable scientific and cultural interactions and mentoring across the international borders. The first meeting was very successful, with the students expressing their strong desire for the next such endeavor. We have formed a scientific board comprising members from the broad international astrophysics community, which has provided guidance on the organization of the 2nd PANDA Symposium. This board has proposed the following structure:

First day senior lecturers:

1. Matthew Baring – High-Energy Sources (theory)
2. Isabelle Grenier – High Energy sources (observations)
3. Yves Gallant – TeV Sources (HESS/HAWK)
4. Luke Drury – Particle Acceleration Mechanisms
5. Tom Paul – Cosmic Rays (Auger)
6. Albrecht Karle – Neutrinos
7. Mansi Kasliwal – PTF

8. John Carpenter – Submm Astronomy (ALMA)
9. Bruce Allen – Gravitational Waves
10. Shuangnan Zhang – Status of MMA in China: TIBET shower array, Radio telescopes, HXMT and SVOM
11. Martin Ward – PanSTARRS results
12. Leslie Sage – Life with Nature

Mini-Workshop Themes:

- a. Particle Acceleration Mechanisms
- b. High Energy Sources: PSRs, SNR, SNe, GRBs, AGN
- c. Wide-field Astronomy: transients

Suggested organizer names: (to be confirmed)

- a. Anatoly Spitkovsky, Klara Schure, Sera Markoff, Henric Krawczynski, Xiaojun Bi, Li Zhang
- b. Stefanie Wachter, Marianne Lemoine-Goumard, Jinlin Han, Zigao Dai, Lixin Li
- c. Rubina Kotak, Jason Hessels, Tara Murphy, Wenfei Yu, Anna Watts, Junhui Fan

Finally, the meeting will have networking events, debates on hot issues and a forum to exchange new ideas and projects, as well as mentoring of the young postdocs and students from the senior scientists.

***** LOCATION *****

The meeting is held during the week of April 22-26, 2013, in the world famous Old City of Xi'an, located in ShanXi province, China. The weather in Spring should be pleasant, and giving the participants an opportunity to extend their stay to visit the famous view near the city or other parts of China. We will arrange for a one-day tour during the middle of the meeting and help to make arrangements for more extensive touring packages after the meeting.

***** FINANCIAL SUPPORT *****

There is limited financial support, preferably allocated to students and postdoctoral fellows. from developing and difficult countries. The way of how to apply for the support can be found in the meeting web of registration.

***** IMPORTANT DATES *****

29 December 2012	registration opens
29 December 2012	abstract submission opens
20 February 2013	abstract submission deadline
1 March 2013	final program

15 February 2013	end of early registration
------------------	---------------------------

*** **ORGANIZAITON** ***

The Symposia subject and venue is decided by an International Board of senior members who appoint the **SOC** of each Symposium. The current Board consists of the following members:

Chryssa Kouveliotou (NASA/MSFC)

Matthew Baring (Rice U.)

Catherine Cesarsky (CEA Saclay)

Neil Gehrels (NASA/GSFC)

Alice Harding (NASA/GSFC)

Christine Forman (Harvard/SAO)

Max Makishima (U. Tokyo)

Richard Manchester (CSIRO)

Martin Ward (U. Durham)

Richard McCray (U. Colorado)

Ed van den Heuvel (U. Amsterdam)

Jianmin Wang (IHEP)

Ralph Wijers (U. Amsterdam)

Shuangnan Zhang (Chair, IHEP)

*** **LOC** ***

Wei Zhao (Chair, XIOPM)

Baosheng Zhao (XIOPM)

Le Wang (Co-Chair, XIOPM)

Fan Zhang (Co-Chair, IHEP)

Guoxuan Dong (NSFC)

Qingzhong Liu (NSFC)

Yin Liu (XIOPM)

Xiaojun Bi (IHEP)

Min Zhang (IHEP)

Chen Hu (IHEP)

Yuan Liu (IHEP)

***** MEETING WEBSITE and REGISTRATION *****

More information on the meeting, including early registration, can be found in the meeting website <http://panda.ihep.ac.cn>