Astrophysical **S**ource **I**dentification and **S**ignature (**ASIS**) Closeout

LSC General Meeting, August 2000

Bruce Allen
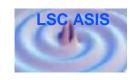## University of Wisconsin - Milwaukee

ASIS Talks

- ## Szabolcs Marka
  - » Proposal for LIGO to join SNEWS (Super Nova Early Warning System).
  - » LIGO will start off by acting as an observer in SNEWS, receiving notifications from SNEWS
  - » Eventual goal: contribute notifications from LIGO with false alarm rate less than one-per-hour
  - » GW detection algorithm for NS still needs to be settled. For some types of SN using a time/freq excess power statistic may be appropriate. Others might need some type of line-tracking algorithm
  - » Info at www.ligo.caltech.edu/~smarka

ASIS Talks

- ## Craig Hogan
  - » New mechanism for production of stochastic GW background
  - » Note: theory predicts that inverse square law gravitational force law breaks down at distances < 1mm
  - » Gravitational perturbations produced via Kibble mechanism when space-time 4-brane formed
  - » Might give background large enough to observe with LIGO-I
  - » GW background would be stationary Gaussian process, with a spectrum described by broken power law: currently planned ASIS detection algorithms should work well

ASIS Talks

- **Tom Prince**
  - » Fast Chirp Transform
  - » Clean way to carry out efficient matched filtering for a large class of signals
  - » Offers a promising alternative to traditional template-bank-based matched filtering methods
  - » Offers an easy way to include "bank" of "non-physical" signals
  - » Now a proposal to the LSC

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ASIS Talks

- Bob Wagoner
  - » R-mode emission models in low-mass X-ray binaries
  - » Examined the effects of models of viscosity different than those considered by Levin
  - » Can give rise to periods of rapidly varying R-mode amplitude with a much higher duty-cycle than previous work
  - » Not clear if ASIS has tools under construction that could detect such signals

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ASIS Talks

- ## Albert Lazzarini
  - » Plan to carry out a stochastic background search using LLO and Allegro
  - » Work/paper with Sam Finn and Warren Johnson
  - » Make use of air table to rotate Allegro bar at 5/7 months to modulate overlap reduction function
  - » Allows one to distinguish between correlated terrestrial noise and stochastic background
  - » sensitivity $\Omega \sim 100$

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ASIS Talks

- Papa, Sintes, Berukoff (and others from the AEI)
  - » Report on the Albert Einstein Institute Hough Transform pulsar detection code
  - » Group has met virtually all the milestones
  - » Some code in LAL standard, some not (but rapidly gaining experience in writing LAL code)
  - » All the pieces are in place except some of the template gridding code
  - » Optimization needed
  - » Allen's prediction: a working search code by the next LSC meeting

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ASIS Talks

- ## P. Brady and T. Creighton
  - » Stack/Slide FFT code for CW sources
  - » Currently 3 months "behind" on milestones
  - » Code all being done to LAL standard
  - » Working on template gridding code (in collaboration with AEI group

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ASIS Talks

- ## David Chin
    - » Reported on Antenna Pattern code
    - » Code finished, tested in LAL format
    - » Some very small discrepancies with Anderson/Brady/Creighton worksheet (perhaps due to different earth models and small relative tilt
    - » Additional documentation coming

ASIS Talks

- ## David Churches
  - » Template bank generation code
  - » Essentially finished -- written to LAL standard
  - » Will be in LAL 0.6 release
  - » Last missing part of completed binary inspiral search code

ASIS Talks

- Duncan Brown
  - » Hierarchical binary inspiral search code is complete (skeleton for N-pass hierarchical search)
  - » Stationary-phase inspiral filtering code complete
  - » Single pass search code integrated with LDAS
  - » Will be integrated with template bank generation code as soon as that is available
  - » Tested on noise
  - » Will now be tested on simulated signals
  - » Should be in place, tested and understood for upcoming engineering test run
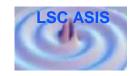
ASIS Talks

- ## Kent Blackburn
  - » LAL / LDAS interface (WrapperAPI)
  - » Specification under rapid development (version 9)
  - » Working group actively testing and implementing prototype (binary inspiral search code)

ASIS Talks

- ## Sam Finn
  - » Data Conditioning API lessons and future needs
  - » needs veto dropout correction, barycentering, and other functionality added
  - » stressed the need for team-building approach to MDC

ASIS Talks

- Barry Barish
  - » Future model for "software MOUs" focused on deliverables
  - » Tie responsibilities to ASIS and DC groups more closely to written MOUs
  - » 18 month horizon includes past and future six months
  - » Lab will work with several groups to develop MOUs that can be used as models/examples by other groups
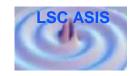
ASIS Talks

- Sathya
  - » Described interpolation methods that allow a reduction in template bank size (perhaps factor of 4)
  - » Not known how this responds to detector noise
  - » Currently at level of research project rather than implementable tool

ASIS Tasks

- ## Sam Finn
  - » Has formed a group within the LSC to undertake one of the "unassigned" tasks on the ASIS task list.
  - » Penn State will be the lead group.
  - » Will design and write code for multi-detector analysis
  - » Are going to present plan & milestones at next ASIS telecon.

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