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# CW Search Group Efforts – overview

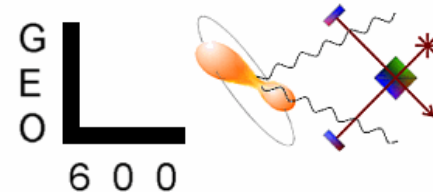
Michael Landry  
LIGO Hanford Observatory  
*on behalf of the CW Search Group*

LSC Meeting  
June 6, 2004  
Tufts University, MA



# Coherent searches

(S2 analyses in red)

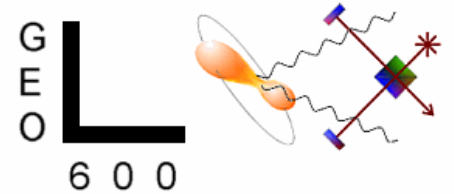


- Time-domain analyses (optimal parameter est.)
  - » Bayesian upper limit on 28 known isolated pulsars
    - Underwent extremely helpful review process
    - Final numbers in paper
  - » Parameter estimation with Markov-Chain Monte-Carlo method
- Frequency domain analyses (optimal blind detection)
  - » F-statistic, nearby all-sky, broadband, ~10h data
    - New coincidence pipeline implemented
    - Preliminary results on 10Hz band all-sky search
  - » F-statistic, LMXB Sco X-1, ~6h data
    - Also employs new coincidence pipeline
    - Preliminary analysis of 620-624Hz band
  - » F-statistic, galactic core, broadband

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# Incoherent searches



- Three searches: all-sky, wideband, scanning all observation time
  - » PowerFlux
    - Code optimization (now written in C instead of script language)
    - Finer binning in sky
  - » Stack-Slide
    - SFTs normalized with LAL running median code
    - Monte Carlo in place
  - » Hough
    - New Monte Carlo
    - Preliminary all-sky analysis on 200-400Hz band
- Moving towards hierarchical search, alternating stages of incoherent and coherent search algorithms



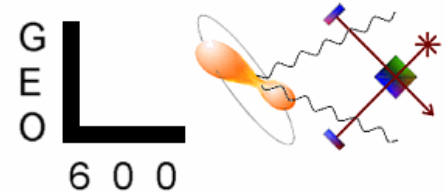
# Publication plans

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- TDS Plan
  - » Modify existing S2 paper
    - Prune analysis section and add detector section (Whitcomb)
    - Rewrite opening two paragraphs (Finn)
  - » S3 TDS: expect longer paper, increase population of isolated pulsars, include binaries
    - Target PRD
- F-statistic results: combined PRD paper on I) broadband all-sky search, and II) Sco X-1
  - » Expect to be submitted PRD
- Hough transform results (PRD)
  - » To be submitted to PRD
  - » Possible inclusion, if ready, of other incoherent methods such as Stackslide and Powerflux



# Sunday a.m. session



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9:00 - 9:15	Introduction
9:15 - 9:30	Coherent frequency-domain search for unknown isolated pulsars – M. Papa
9:30 - 9:40	questions
9:40 - 9:55	Coherent frequency-domain search for signal from binary system Sco-X1 - A. Vecchio
9:55 -10:05	questions
10:05 – 10:30	no comments from reviewers
10:30 – 10:45	Break
10:45 -10:55	Incoherent search for strong unknown isolated pulsars using PowerFlux – V. Dergachev
10:55 – 11:05	Incoherent search for unknown isolated pulsars using the stack-slide method – G. Mendell
11:05 – 11:15	Incoherent search for unknown isolated pulsars using Hough transform – A. Sintes