

Status Report on CW Discriminator Work

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Antenna Pattern Code

- Basic code & documentation (**Dave Chin**) installed in LAL in Summer 2000, but very little work done since
- Remaining tasks:
 - » Vectorize the routines for more efficiency
 - » Add option for sensitivity to scalar waves (R. Wagoner request)
 - » Beef up the documentation, including a LIGO technical note
 - » Finalize the structures describing the IFO locations and orientations (Dave working with John Whelan et al on this)
- All straightforward - just have to make the time

Instrumental Lines

- Known mechanical resonances (>150) in Hanford 2K added to meta-database:
 - » Original list from **M. Landry & D. Ottaway** (LIGO-T000020-00)
 - » Basic entries:
 - Best known central frequency
 - Best known FWHM in frequency
 - Bit flag for additional info (e.g., phase for coherent lines)
 - » Sample entries for butterfly test mass resonance at 6747.5 Hz:
 - Name=**Line:H2:6747.5:freq0:mirror** Value=**6747.5**
 - Name=**Line:H2:6747.5:fwid0:mirror** Value=**0.0052**
 - Name=**Line:H2:6747.5:finfo:mirror** Value=**0.0** (no addl info yet)
(nominal line value used as common index in variable name)
 - » This naming scheme circulated to ASIS in December 2000

Instrumental Lines

- Much work to do:
 - » Write LAL-compatible code to extract database entries and store in suitable structures for use in CW search
 - » Write online code to sift through DMT line monitor (S. Klimenko) output (trend frames) to extract and store into database long-term phase/amplitude parameters of coherent lines (60 Hz & harmonics)
 - » Write DMT code to search continuously for unknown lines of width <1 mHz for “manual” investigation.
 - » Write stand-alone code to look for solar-day modulations in candidate sharp instrumental lines
- One active person on this at present:
 - Huimin Hu (New grad student - wrote C code for initial database entry)
 - (KR to lend a hand when classes end)