

## Underwater Acoustics Technical Committee Minutes of the Meeting, Kansas City, Missouri

The following are the minutes from the Underwater Acoustics (UW) Technical Committee (TC) Minutes of the Meeting, Kansas City, Missouri, October 22 – 26, 2012. The TC meeting was held Thursday October 25, 2012, from 7:30 PM until 8:30 PM and was chaired by Dajun (DJ) Tang, the UWTC chair. There were approximately 50 attendees.

- Thanked Lisa Zurk for serving as UWTC chair for the last three years.
- Reviewed the Hong Kong meeting best student papers for AO/UW
  - Huikwan Kim, University of Rhode Island, Long range propagation modeling of offshore wind turbine noise using Finite Element and Parabolic Equation models
  - Menglu Xia, Zhejiang University, Time reversal based channel tracking for underwater acoustic communications
- Thanked Dave Dowling for being UW TPOM representative for Kansas.
- Thanked anonymous student paper judges.
- Two special sessions for Kansas City Meeting were successfully run and reviewed:
  - Title: Random Matrix Theory
    - Organizers: James C. Preisig, Kathleen E. Wage. Joint: SP
  - Title: Memorial session in honor of Clarence S. Clay
    - Organizers: Dezhong Chu, Timothy K. Stanton, J. Mike Jech, John K. Horne. Joint with AO with UW co-sponsorship
- The Montreal Meeting issues were discussed. Jim Lynch volunteered to be the TPOM representative.
- Special sessions for Montreal are:
  - Title: Sparse Process Modeling Techniques for Acoustic Signal Processing
    - Description: Models and methods that leverage sparsity either for computational savings or for parsimonious statistical representation are explored for their improvements to acoustic signal processing. Applications range from sparse sampling and acoustic field encoding to spectral estimation, array processing, component analysis, and broadband multipath channel estimation.
    - Organizers: Geoffrey Edelmann and Paul Gendron
    - Joint: SP
  - Title: Using GPUs for computationally intensive applications in acoustic modeling and signal processing
    - Description: New multi-core hardware architectures and software infrastructures to support them are making parallel computing very accessible at modest cost. This session will feature work on adapting computationally demanding modeling and signal processing tasks to take advantage of various parallel architectures, such as cloud computing, computing clusters, multi-core CPUs, multi-core graphic processing units (GPUs), DSP chips, and FPGAs.

- Organizers: : Paul Hursky, Joint with SP
  - Title: Arctic acoustics & applications
    - Description: Physical mechanisms and model validation of sound and seismic interactions with the Arctic ice cap. Ice rheology factors affecting sound and sea surface wave interactions with the marginal ice zone. Acoustic applications include under-ice resource exploration, geophysical surveys, acoustic navigation & communications, environmental monitoring & remote sensing. Impact of anthropogenic activities on Arctic marine organisms.
    - Organizers: Juan Arvelo, Stan Dosso. Joint with AO
  - Title: Seabed Scattering: Measurements, Modeling, and Mechanisms
    - Description: Scattering from the seabed, either from its interface or volume, affects sonar performance, as well as complicates seabed parameter estimation using acoustic methods. This session features measurement and modeling advances over a wide range of frequencies, including ability to separate scattering mechanisms.
    - Organizers: Charles Holland, Gavin Steininger
  - Title: Distributed acoustic sensing via fiber optic cable
    - Description: Distributed acoustic sensing (DAS) makes it possible to make vibroacoustic measurements using only fiber optic cable; this is done in the absence of discrete sensing stations. This session will explore emerging applications for this new existing technology.
      - Organizers: Daniel Finfer, Emery Ku, R. Daniel Costley. Joint with EA
- Special sessions for Sans Francisco were discussed and decided:
  - Title: The acoustics of bubbles and bubble clouds in the oceans (Joint with AO)
    - Description: Bubbles in the sea both influence the propagation of sound and generate underwater sound. Important phenomena include passive and active acoustical effects of wave-induced bubble clouds, methane seeps, bubbles in sediments and sea grass, and man-made bubble screens.
    - Chairs: Grant Deane, gdeane@ucsd.edu and Lee Culver rlc5@psu.edu
  - Title: Deep Water Acoustics
    - Description: Acoustic propagation and sensing in deep water. Topics of interest include scattering due to small-scale variability, seafloor interactions, the effects of tides, eddies, and fronts, and tomography.
    - Chairs: Kathleen Wage kwage@gmu.edu and John Colosi [colosi@nps.edu](mailto:colosi@nps.edu)
  - Title: Sediment Acoustics: modeling, measurements and inversions (Joint with AO)

- Description: The modeling, measurement and inversion of the acoustic properties of ocean sediments of a range of types including, rocks, sands, silts, and clays.
    - Chairs: Marcia Isakson ([misakson@arlut.utexas.edu](mailto:misakson@arlut.utexas.edu)) and Nicholas Chotiros ([chotiros@arlut.utexas.edu](mailto:chotiros@arlut.utexas.edu))
  - Title: Internal wave scattering in shallow water
    - Description: Sound propagation in shallow water is strongly affected by internal waves, spice, and finestructure. The session includes the history of this research, the ocean modeling efforts, the intense acoustic and oceanographic measurement programs that have occurred, and the unexpected three dimensional propagation effects discovered.
    - Chairs: Steve Finette [steven.finette@nrl.navy.mil](mailto:steven.finette@nrl.navy.mil) and Jim Lynch [jlynch@whoi.edu](mailto:jlynch@whoi.edu)
- A special event that was proposed for the Montreal meeting (as a side symposium): To celebrate the 10th anniversary of the Discovery of Sound in the Sea website ([www.dosits.org](http://www.dosits.org)). The UWTC was being asked to vote on the ASA cosponsoring the event and to propose a technical initiative for \$2000 (with AO) to help with the room rental. The TC approved both to cosponsor the event and to propose the technical initiative. As a result, the AOTC meeting will be combined with the UWTC meeting on Thursday.
- A named special session is suggested at the Providence meeting to honor Williams Carey.
- The UWTC also approved to co-sponsor the following meetings:
  - *UAM-ECUA*, June 23-28, 2013, Corfu, Greece
  - *PRUAC*, 9-11 October 2013, Hangzhou, China (Chapman/Dahl, POC). \$2000 for North American student travel
  - *Ocean Acoustic Interference Phenomena and Signal Processing* workshop scheduled for Moscow, Russia June 17-21, 2013. (Dan Rouseff, POC)
- Polls were conducted on the following matters:
  - Online abstracts useful? All who used it were happy with it.
  - Do you like, not like, or care: Echoes (PDF? online?) and Acoustics Today?  
Result: Leave Acoustics Today in paper form, give choice to members who prefer electronic copy; but transform Echoes to electronic form.
  - Poll: JASA on USB for \$150, would you buy it? Only 2 out of 50 expressed interests to but
- Student representative of UW, Jennie Wylie, made announcements
- Adjourned.