

**QIBA Ultrasound Shear Wave Speed (SWS)  
Phantom-System Measurement Testing**

Monday, July 16, 2012; 1 PM CT  
Call Summary

**In attendance**

<b>Brian Garra, MD (Co-Chair)</b>	Steven E. Fick, PhD	Clark Zhe Wu, PhD
<b>Timothy J. Hall, PhD (Co-Chair)</b>	Nicolas Rognin, MSc, PhD	Hua Xie, PhD
Jeremy Bercoff, PhD	Cedric Schmitt, PhD	
Paul L. Carson, PhD, (QIBA Sci. Coord)	Gale Sisney, MD	<b>RSNA</b>
Shigao Chen, PhD	Daniel C. Sullivan, MD	Joe Koudelik
David Cosgrove, MD	Keith Wear, PhD	Madeleine McCoy

**General discussion**

- Dr. Fick discussed NIST reference standards regarding phantoms and the current collaboration between NIST, academia and corporations.
  - Currently NIST lacks a reference standard for dynamic mechanical measurements on materials with elastic moduli comparable to soft tissues
- Dr. Rognin presented an overview of **Cryogel Phantoms for Ultrasound Elastography**
  - Phantom materials discussed: PolyVinyl Alcohol Cryogel (PVA-C)
    - Two Applications:
      - Quasi-Static Elastography: IntraVascular UltraSound (IVUS)
      - Shear Wave Elastography
- Appropriate methods of storing Cryogel phantoms discussed
  - AGAR maintained stability over time stored in a bath of water-alcohol (*n*-propanol)
  - Gelatin stored in a water-alcohol mixture swelled over time and is deemed not suitable for storage
- Dr. Chen presented **Viscous Phantom Material** data which included:
  - In Vitro Liver Test
  - CIRS Phantoms Results
  - Polyvinyl Alcohol (PVA) Phantoms
- Extended discussion addressed problems using PVA materials:
  - complex phantom designs (inability to separately control freeze-thaw of component materials)
  - unknown interface bonding between constituent parts of phantoms
  - gradients in freeze and thaw rates within the volume of relatively large (1-liter) phantoms
  - unknown long-term stability of material properties
  - unknown reproducibility in manufacturing
- Both presentations will be available on the WIKI for group reference at:  
[http://qibawiki.rsna.org/index.php?title=Phantom\\_Development\\_Subcommittee](http://qibawiki.rsna.org/index.php?title=Phantom_Development_Subcommittee)

**Next steps:**

- The topic for the next t-con will be Drs. Hall and/or Madsen to present an overview of phantom materials based on agar, gelatin, agar-gelatin mixture, and oil dispersions in agar-gelatin.

**Next calls:**

- Phantom Subcommittee – **Monday, August 6, 2012 at 1:00 PM CT** (Drs. Hall and Garra to moderate)

**[QIBA wiki](#)**

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