

**QIBA Ultrasound Shear Wave Speed (SWS) Combined Call:
System Dependencies and Phantom-System Measurement Testing Subcommittees**

Friday, January 17, 2014; 11 AM CT
Call Summary

In attendance

RSNA

Mark Palmeri, MD, PhD (Co-Chair)	David Cosgrove, MD	Stephen McAleavey, PhD	Joe Koudelik
Keith Wear, PhD (Co-Chair)	Steven Fick, PhD	Andy Milkowski, MS	Julie Lisiecki
Michael Andre, PhD	Brian Garra, MD	Daniel Sullivan, MD	
Paul Carson, PhD	Gilles Guenette, RDMS, RDCS, RVT	Matthew Urban, PhD	
Shigao Chen, PhD	Timothy J. Hall, PhD	Hua Xie, PhD	
Jun Chen, PhD	Jingfeng Jiang, PhD		

Moderator: Mark Palmeri, MD, PhD

Agenda:

- * Review / approve minutes from last meeting
- * Sharing "raw" data formats (Dr. Palmeri)
 - + A. Samir has clinical data that does **not** currently include raw data
 - + What would the research / industry community want in raw data?
 - + Test data formats in simulation data output (already available for elastic simulation)
 - Matlab?
 - Generic binary data w/ readers for different formats?
 - DICOM?
 - + What raw data is available from Phase I (and will be from Phase II) studies
- * Simulation study
 - + FEBio implementation update (Dr. Jiang)
 - + Ultrasonic configurations to simulate (Dr. Palmeri)
 - Software packages to compare / contrast
 - Point-people for each package
 - + Material models to simulate (Dr. McAleavey)
- *Feedback from subcommittee members on the call frequency and the days for the "combined" call (Mondays, 1pm CT vs. Fridays, 11 am CT)
 - The call summary from 2013-12-16 combined (Phantom subcommittee) and (System Dependencies subcommittee) was approved.

Some Notes provided by Dr. Palmeri:

- Simulation efforts reviewed & discussed
 - Steve McAleavey reviewed FDTD code, results, to date, etc.
 - Ability to change material model
 - Wrapper to make the model accessible to others
 - Voigt model is the most common model being used; would be nice to expand to others
 - JJ gave an overview of integration of FEBio tools for shear wave simulations with existing VE models
 - Mark gave an overview of combined code / scripts to stitch together acoustic and mechanical simulations
- Sharing of raw data
 - Mark/Steve <-> experimental and FDTD data
 - Compare VE sim data w/ elastic reconstructions

- Frequency of calls: Doodle Poll

Updates

FDTD model:

- Dr. McAleavey is working with an FDTD/ Voigt model, as a simulation of SMURF in the elastic materials
- Two additional material models would be nice to have for other users to be able to change the viscosity or modify the model, since the Voigt model has limitations
 - An empirical match might also be useful
 - Run time could be several hours for one model
 - Goal to use datasets for future analysis, common focal, endpoints

FEBio

- Work in progress toward implementation of acoustic pulses as dynamic mechanical stimuli
 - Simple message/ file passing using command line between two source packages
 - Embed arbitrary shaped targets, using automated numerical phantom creation

GitHub

- Dr. Palmeri is working on an open repository infrastructure to share data
 - Uses many scripts/codes in Python, generic to solver, for better accessibility for users
 - Has created two open repositories with simulation of ultrasonic tracking
 - These datasets are posted online and have been shared with the group
 - Hoping that simulation tools will help whittle down the materials list
 - Working to implement a common data format in efforts to make data more accessible
 - Important to note that new data for ultrasound is not in an image format
 - Feedback welcome: mark.palmeri@duke.edu.
 - Other challenges include –
 - How to publicize this information and whether or not that is a mission of the group
 - How to share the data and data processing / validation methods
 - Phase II will be more complicated with shear wave morphology as it has not been analyzed enough yet
 - Volunteers to try processing the Duke data with their methods are welcome as a measure of quality control
 - Dr. McAleavey volunteered; Dr. Palmeri will make data available for download and also offered to process Dr. McAleavey's Voigt VE data

Call Scheduling and Frequency

- RSNA staff to Doodle Poll the group regarding scheduling frequency and day / time for this combined subcommittees call.
- The call will also be held twice as frequently – biweekly.

Action item: RSNA staff to Doodle Poll the group regarding call day / time for the combined subcommittees.

Schedule for February:

<i>Date</i>	<i>Time (CT)</i>	<i>Day</i>	<i>Committee/ Subcommittee</i>
02/10/2014	1:00 pm CT	Monday	US SWS Technical Committee Moderator: Dr. Hall
02/21/2014	11:00 am CT	Friday	COMBINED: System Dependencies / Phantom Subcommittees Call Moderator: Dr. Wear
02/24/2014	1:00 pm CT	Monday	US SWS Clinical Applications Subcommittee Moderator: Dr. Samir

02/18/2014

11:00 am CT

Tuesday

QIDW US SWS follow up call (image database) - **SMALL GROUP ONLY**

Only Drs. Andriole, Dhyani, and Samir

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