Quality control (QC) testing of ultrasound scanners is important to verify the proper and consistent operation of these devices. The basics of ultrasound QC have been outlined thoroughly in the reports of AAPM Ultrasound Task Group No. 1, AAPM Task Group 128 and AAPM Task Group 154, but ultrasound QC is best learned in a hands-on environment with live demonstrations of the techniques. The first half of this workshop will include three presentations: 1) ultrasound QC for diagnostic imaging, 2) ultrasound QC for prostate brachytherapy and other ultrasound-guided radiotherapy procedures, and 3) electronic testing devices for ultrasound QC. The second half of the workshop will include live demonstrations of basic QC tests, test tools and software. Separate stations will be available to demonstrate and provide attendees with hands-on opportunities in ultrasound-guided radiotherapy QC testing, Doppler testing, B-mode imaging (image uniformity, depth of penetration, distance accuracy, etc.), and electronic testing tools. The ultrasound imaging subcommittee is currently working on software that will allow a quantitative assessment of the function of transducer elements. If this software is available in time, it will also be demonstrated at the workshop.

Learning Objectives

1. Outline elements of a quality control program for ultrasound systems for diagnostic imaging and ultrasound-guided radiotherapy applications.
2. Identify the tools available for testing ultrasound systems (phantoms, software, and electronic testing devices) and learn how to use those tools effectively
3. Observe the impact of system and probe deficiencies on ultrasound performance and image quality
4. Outline the guidelines from ultrasound accreditation bodies such as ACR and AIUM.
5. Receive practical advice from people experienced in ultrasound QC