Additive manufacturing provides a unique opportunity to embed defects of known size and shape to produce reference samples for inspection and quality control purposes. This work shows defect detectability studies on cylindrical additively manufactured cobalt-chromium alloy specimens with defects of known sizes and distributions. The specimens were investigated with immersion, synthetic aperture focusing (SAFT), phased array, and nonlinear ultrasonic techniques. Detectability, signal to noise ratios, and comparison of results between the methods will be presented.

Acknowledgement:

This work is supported by the IU CRC program and the sponsors of the Center for Nondestructive Evaluation.