Abstract ID: 17259 Title: CR/DR Image Noise - Part 2

This portion of the Education Corse in Radiography builds upon the historical perspective of image noise analysis in Radiography and the theoretical underpinnings of Noise Power Spectrum (NPS) measurements presented in the *CR/DR Image Noise - Part 1* portion of the session. The initial acceptance testing and continuing assessment of the performance of the detector device in a digital radiographic system is an important component of a comprehensive Quality Assurance (QA) program, and the NPS provides valuable information on noise texture and low frequency noise characteristics. We discuss here practical approaches to the measurement of the NPS in storage phosphor, indirect conversion and direct detection devices in a clinical setting including acquisition setup and beam conditions. In addition, the sensitivity of the NPS to changes in the technique used to acquire the data or varying beam conditions will be addressed. The differences between the measurement of the NPS and noise as measured by the standard deviation of the pixel values in a ROI in different detector types will also be discussed.

Learning Objectives:

1. To understand the roll of measuring the NPS of a digital radiography detector in acceptance testing or routine QA

2. To understand the methodology and challenges of measuring the NPS of a digital radiography detector in a clinical setting

3. To become familiar with the NPS measurement's sensitivity to the acquisition technique and beam conditions.