

Online multispectral imaging techniques - the special view of the USDA Russel Research Center

**Special Guest : Pr. [Bosoon Park](#), USDA, ARS, Russell
Research Center, P.O. Box 5677, Athens, GA 30604-5677**

Abstract : A pilot-scale multispectral imaging system, including a common aperture camera with three optical trim filters (515.4, 566.4 and 631 nm), which were selected by visible/NIR spectroscopy and validated by a hyperspectral imaging system, was developed for a real-time, on-line poultry inspection application. The algorithm of image ratio (566.4-nm image/515.4-nm image) developed by a hyperspectral imaging system were employed for multispectral image analysis to validate the accuracy of fecal and ingesta detection in real-time poultry processing. A multispectral imaging system could be used effectively for detecting feces (from duodenum, ceca, and colon) and ingesta on the surface of poultry carcasses.

The overall accuracies of contaminant detection were 96.8%, 94.4%, and 91.3% for corn, milo, and wheat with soybean mixed fed broiler carcasses, respectively. This system can be effectively used for on-line poultry processing lines at a rate of 140 birds per minute.