

A variety of artifacts/undesirable contrasts that impact MRI imaging will be presented. Three classes of artifacts will be considered: 1) Artifacts which originate from malfunctioning or miscalibrated hardware/software, eg, data acquisition errors, zippers/stars, RF artifacts, magnetic field inhomogeneity, and N/2 EPI artifacts. 2) Artifacts arising from constraints on or inappropriate pulse sequence parameters, eg, truncation (Gibbs), undersampling, aliasing, or dynamic range artifacts. 3) Artifacts arising from interactions between the patient and the MRI system, eg, chemical shift, flow, metal, motion, and magnetic susceptibility artifacts. Where appropriate, imaging schemes that minimize the significance of an artifact will be presented.

Educational objectives:

The clinical medical physicist will learn to recognize common MRI artifacts and undesirable contrast and understand their underlying causes. Additionally, the clinical medical physicist will learn how to minimize certain artifacts through manipulation of imaging parameters.

Upon completion of this course, participants will be prepared to:

1. Recognize artifacts/undesirable contrast.
2. Identify common artifacts and understand why they occur.
3. Manipulate imaging parameters to minimize the significance of common artifacts.