

This presentation in the symposium is focused on the recent advances in digital breast tomosynthesis (DBT). DBT is a three-dimensional (3D) x-ray breast imaging technique. Several projection images of the breast are obtained from different angles, and image reconstruction is used to generate cross-sectional slices (with 1 mm thickness) that are parallel to the detector. Several DBT prototype systems have been developed by different manufacturers through modification of screening full-field digital mammography (FFDM) systems. The x-ray tube gantry typically rotates around the compressed breast with a limited angular range (15 to 60 degrees) and acquires a limited number of images (11 to 49). In this presentation, an overview of the following aspects of DBT will be provided: 1. Different approaches to system implementation of DBT, and their advantages and limitations; 2. Comparison of different image reconstruction methods, including filtered back projection (FBP) and iterative reconstruction; 3. Special considerations for DBT compared to conventional projection mammography: scattered radiation, x-ray spectrum and detector performance; 4. Methods for the evaluation and optimization of DBT image quality; 5. Clinical results of breast cancer detection using DBT and its comparison with projection mammography; 6. Combination of DBT with other 3D imaging methods for multi-modality breast imaging applications.