

## **The Linear Model for Chirp-Pulse Microwave Computerized Tomography: an Analysis of the Applicability Limitations with an Application to Mammography**

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Chirp-Pulse Microwave Computerized Tomography (CP-MCT) is a multifrequency imaging modality developed at the Department of Biocybernetics, Niigata University, Niigata, Japan which provides map of temperature variations in biological tissues, via temperature dependence of the attenuation and/or phase constant of the microwave. In a series of papers a linear model for data reduction in CP-MCT has been formulated, whereby a CP-MCT projection is given by a blurred version of the Radon transform of the contrast and the blurring is described by the impulse response of the device. In this talk the applicability limitations of this model will be discussed and the influence of diffraction and refractive effects will be investigated. We will also present the simulation of a mammographycal experiment computed by means of an FD-TD technique and the effectiveness of a reconstruction algorithm based on the linear model will be studied.