

Industrial Application of High Energy CT

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As the complexity of casted and additive manufactured components e.g. in the aerospace and automotive industry as well as manufacturing processes continues to increase, industry is seeking for reliable and precise 3D metrology and inspection CT solutions. The dilemma for state of the art industrial x-ray CT is that the large, dense and complex additive printed parts are difficult to penetrate with standard 450kV or 600kV tubes. This leads to use of Linear Accelerators which are able to provide powerful X-Ray beams in the MeV range. In combination with optimized large area Flat Panel Detectors the scanning speed is much faster compared to standard line detector approaches. In our presentation we will present a new approach in the area of High Energy CT with a Linear Accelerator and an optimized flat panel detector solution minimizing typical artefacts. CT system based on line detector concepts provide good image quality due to the intrinsic suppression of scatter artefacts but these concepts suffer from long scan times. In the artefact free CT volumes we are able to visualize defects and apply metrology methods to measure part specific features. Case studies focusing on aerospace and aviation additive components will be shown to demonstrate the system capabilities in these quality critical segments.