



## NOISE PATTERNS IN INDUSTRIAL MICRO COMPUTED TOMOGRAPHY



GRIN Verlag Mrz 2011, 2011. Taschenbuch. Book Condition: Neu. 211x149x13 mm. This item is printed on demand - Print on Demand Neuware - Research Paper from the year 2010 in the subject Computer Science - Technical Computer Science, grade: 1.4, University of Applied Sciences North Rhine-Westphalia Paderborn, language: English, abstract: Computer Tomography (CT) systems are used to produced images that are finding increasing use in medicine and mineralogy as in the Natural History Museum. In order to maximise the system performance, the images or scans, must have high quality. Ideally, the physical CT system should preserve the image quality. However, in reality, various physical processes degrade the quality of these images, producing noise and artefacts. The goal of this work is to understand the noise and artefacts in high-resolution imaging application of micro computer tomography (micro-CT). The project specifically looked at determining: I. How micro-CT scan parameters be optimised to reduce noise, and II. Which of the many commonly used noise reduction algorithms produce the best results, and III. How current and exposure effect each other. Experiments were carried out to obtain the raw data - images / scans for the study. Theoretical models were then implemented on the raw data to analyse and better understand the noise and artefacts in the images. This work provides a better understanding of both the fundamental performance (i.e. image quality) of the micro-CT system, and the assessment of user-defined parameters that could be used to optimise the performance of the micro-CT systems. These contributions will not only save time, money and resources, which will ultimately lead to better image quality (greater accuracy) 56 pp. Englisch.



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