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Computed Tomography for Characterizing Industrial Materians

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Computed Tomography (CT) is a non-invasive technique that can provide two-dimensional cross-section image and information on the internal structure of an object including abnormalities and their dimensions using spatial measurements across it. CT has been long used and is well established in the medical and NDT applications but because of emerging technologies and through research and development, it is now carried out for industrial applications. CT is a powerful tool of quality control and has shown a wide range of industrial applications in mechanical, plastic and chemical and ceramics industry. The benefits that the technology offers to industries make gamma-ray CT an interest for research and development endeavours.

This paper reports the capability of a first generation gamma ray CT system is characterizing different material in terms of the density distribution along the cross section of each sample. Measurements were taken from samples of wood, industrial steel piper and polyethylene products using a single-source, single-detector system and images were recreated using an image reconstruction software. Reconstructed images show relatively good representations of the actual samples that provide a qualitative density distribution along the object cross section. With further refinement and optimization of measurement parameters and review of reconstruction algorithms, the technique could be a useful tool for inspection and troubleshooting in a variety of industries.

Country/Organization invited to participate

Philippines

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