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Application of Hybrid Wavelet-Fractal Compression Algorithm for Radiographic Images of Weld Defects

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Abstract: Based on the standard fractal transformation in spatial domain, simple relations may be found relating coefficients in detail subbands in the wavelet domain. In this work we evaluate a hybrid wavelet-fractal image coder, and we test its ability to compress radiographic images of weld defects. A comparative study between the hybrid coder and standard fractal compression technique have been made in order to investigate the compression ratio and corresponding quality of the image using peak signal to noise ratio. Numerical experiments using radiographic images of weld defects illustrate the superior performance of the hybrid coder compared to standard fractal algorithm.

Keywords : Fractal Compression, Discrete wavelet transform, Wavelet-Fractal coder, Radiographic images of weld defects, Compression ratio, Peak signal to noise ratio