

Nuclear fuel is visually inspected during regular shutdowns in order to monitor defects and long-term changes. To enable automatic comparison of images of fuel assemblies, it is crucial to perform their registration, the implementation of which has not yet been published in the scientific literature. In this work we present an analysis of image registration techniques and similarity metrics inspired by the focus operators used in autofocus and shape-from-focus. Their performance has been evaluated using a series of experiments that tested their various properties on a novel data set obtained in cooperation with the research organization Centrum výzkumu Řež. Finally, we present and discuss the results and make recommendations on which to use in which scenario.