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Abstract

**Statistical 3D analysis of foam bubbles in poreous media
using a large NoSQL Database**

Modeling foam behavior in porous media is a complex task. X-ray computed tomography experiments are used to obtain at least an accurate visual description of physical processes. Thus, it provides a large collection of 3D images. Using python and scikit-image, an automatic sequence of operation able to process these images was developed to isolate foam bubbles in porous media and to extract geometric and statistical features over this huge set of images. To transform such a large collection of raw images into meaningful features requires also a clean upstream preparation. Therefore, a database was also designed in order to let python apply standard algorithms of image processing in an automated way.