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Application of full set of two point correlation functions from a pair of 2D cut sections for 3D porous media reconstruction

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Abstract

Three dimensional reconstruction of porous media using limited statistical information has attracted a great interest in Earth sciences and petroleum engineering. In this study, a fast and reliable method for 3D reconstruction is proposed based on approximation of correlation functions and phase recovery algorithm using one and two perpendicular cut sections. In the proposed method, initially, full set of two point correlation functions (TPCFs) are extracted from the cut sections. Afterwards, the TPCF vectors are decomposed and then averaged to improve the accuracy of the 3D-TPCFs approximation and improve the capabilities of the reconstruction procedure. To demonstrate the ability of the proposed method to deal with both connectivity and

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