



# Median solution and noise sorting, a reconstruction algorithm for emission tomography with large hole collimator

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Auteur	Jeanguillaume, Christian [1], Ines, BOUALI [2], istvan, MAROS [3], faurie, Julia [4]
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Résumé en anglais	<p>SPECT (Single Photon Emission Computerized Tomography) presents poor performances in term of sensitivity and spatial resolution. The bottleneck of the process is due to the use of thin hole collimators. Collimators with large and long holes have been proposed (CACAO), but they involve a difficult inverse problem. OSEM (Ordered Subset Expectation Maximization) has been extensively used with success in conventional Thin Hole Collimator SPECT (THC-SPECT). Unfortunately this algorithm presents some limitations, when applied to the CACAO problem. We developed an algorithm based on the search for a median solution. The first publication describing this algorithm was limited to unrealistic small size problems (6×6 pixels). We present here a dualisation approach, which allows us to solve larger problems. Results on simulations for a 64×64 pixels size problem are given. Comparisons of the same problems treated by the OSEM approach are given.</p>
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