

Acceleration of an algorithm based on the maximum likelihood bolometric tomography for the determination of uncertainties in the radiation emission on JET using heterogeneous platforms

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In recent years, a new tomographic inversion method, based on the Maximum Likelihood (ML) approach, has been adapted to JET bolometry. In addition to its accuracy and reliability, the key advantage of this approach consists of its ability to provide reliable estimates of the uncertainties in the reconstructions. The original algorithm has been implemented and validated using the MATLAB software tool. This work presents the development aimed at implementing an accelerated version of the algorithm using an ITER fast controller platform. The algorithm has been implemented in C++ using the open-source libraries: arrayfire, armadillo, alglib and matio. The use of these libraries simplifies the management of specific hardware accelerators such as GPUs and increases performance. The final work will present the methodology followed, the results obtained, and the advantages and drawbacks of the implementation with an ITER fast controller platform and the ITER CODAC Core System software distribution.

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