Parallel genetic algorithm for alpha spectra fitting (2005)

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10.1238/Physica.Topical.118a00153Abstract:We present a performance study of alpha-particle spectra fitting using parallel Genetic Algorithms (GA). The method uses a two-step approach. In the first step we run parallel GA to find an initial solution for the second step, in which we use Levenberg-Marquardt (LM) method for a precise final fit. GA is a high resources-demanding method, so we use a Beowulf cluster for parallel simulation. The relationship between simulation time (and parallel efficiency) and processors number is studied using several alpha spectra, with the aim of obtaining a method to estimate the optimal processors number that must be used in a simulation.