



## A SEQUENTIAL PARTICLE ALGORITHM THAT KEEPS THE PARTICLE SYSTEM ALIVE (ThuAmOR7)

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✱ **Abstract :** We consider the problem of approximating a nonlinear (unnormalized) Feynman–Kac flow, in the special case where the selection functions can take the zero value. We begin with a list of several important practical situations where this characteristics is present. We study next a sequential particle algorithm, proposed by Oudjane (2000), which guarantees that the particle system does not die. Among other results, we obtain a central limit theorem which relies on the result of Rényi (1957) for the sum of a random number of independent random variables.