

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Singular Function Integration in Computational Physics JAVIER

HASBUN, University of West Georgia — In teaching computational methods in the undergraduate physics curriculum, standard integration approaches taught include the rectangular, trapezoidal, Simpson, Romberg, and others. Over time, these techniques have proven to be invaluable and students are encouraged to employ the most efficient method that is expected to perform best when applied to a given problem. However, some physics research applications require techniques that can handle singularities. While decreasing the step size in traditional approaches is an alternative, this may not always work and repetitive processes make this route even more inefficient. Here, I present two existing integration rules designed to handle singular integrals. I compare them to traditional rules as well as to the exact analytic results. I suggest that it is perhaps time to include such approaches in the undergraduate computational physics course.

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Date submitted: 06 Nov 2008

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