

request for algorithm

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- *From:* ndros <ndros@xxxxxxxxxxxxxxxx>
 - *Date:* Tue, 10 Jan 2006 04:16:16 +0200
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Hi everybody, I am really desperate on this and would certainly appreciate any recommendations/suggestions. I am looking for practical problems that can be solved by means of N-dimensional iterative algorithms, $N \geq 3$ (e.g. 3D space domain, 2D space domain+time domain, 3D space domain+time domain etc), where in each iteration one computes the value at a point $U(x,y,z,\dots)$ with the aid of "previous" points. For instance, $U(x-1,y,z,\dots)$, $U(x,y-1,z,\dots)$, $U(x-1,y,z-1,\dots)$, $U(x,y-2,z-3,\dots)$ are all welcome, but e.g. $U(x+1,y,z,\dots)$, $U(x-1,y+1,z,\dots)$ are not. Any algorithm name/URL/physical problem will do, I am willing to delve into the details myself.

For instance, I have been looking into time/space discretizations of initial value problems/boundary value problems, such as the Poisson equation, but when using only previous points convergence gives me a rough time. I really don't mind reduced accuracy of the one-sided discretization compared to a central alternative one, as long as the algorithm ensures convergence. Any ideas?

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- *Follow-Ups:*
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◇ *From:* loic-dev
 - ◆ ***Re: request for algorithm***
◇ *From:* Peter Spellucci
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