
Subject: Re: Lanczos diagonalisation with IDL

Posted by [Kenneth P. Bowman](#) on Fri, 08 Dec 2006 03:07:19 GMT

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In article <1165497198.963840.266160@l12g2000cwl.googlegroups.com>, philip.tregenna@psi.ch wrote:

> I would like to diagonalise a large, sparse, symmetric matrix, and find
> a limited set of eigenvalues. The best way to do this is to use an
> algorithm based upon the Lanczos method. Has a Lanczos diagonalisation
> routine been written in the IDL language? The procedure with a
> functionality close to that which I need is "LA_EIGENQL". However,
> this routine is not ideal for large sparse matrices as it requires as
> input all the elements of the matrix, including those with a value of
> zero.

Haven't used it, but this looks like a job for IDL Analyst (aka IMSL)

http://www.ittvis.com/idl/pdfs/IDL63_Analyst_RoutinesFunc.pdf

It includes sparse matrix routines. It costs extra, but consider the cost of your time.

Ken Bowman

Subject: Re: Lanczos diagonalisation with IDL

Posted by [Richard French](#) on Fri, 08 Dec 2006 04:13:18 GMT

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You might check out the IMSL routines in IDL Analyst - extra bucks for this software, I know, but it might be worth it. For example, IMSL_SP_LUSOL solves a sparse system of linear equations without having to specify the full sparse matrix. IMSL_SP_LUFAC computes an LU factorization of a sparse matrix without having to store the full matrix. The documentation for IDL Analyst is available on the RSI web site someplace.

Dick French

On 12/7/06 8:13 AM, in article

1165497198.963840.266160@l12g2000cwl.googlegroups.com,

"philip.tregenna@psi.ch" <philip.tregenna@psi.ch> wrote:

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> zero.
>
> Regards,
>
> Philip.
>
