

Publications

- 2007 Marc Baboulin, Serge Gratton, Luc Giraud, and Julien Langou. **A distributed packed storage for large parallel calculations.** *Concurrency and Computation: Practice and Experience*, 19(4):483–502, March 2007.
- 2007 Luc Giraud, Serge Gratton, and Julien Langou. **Convergence in backward error of relaxed GMRES.** *SIAM J. Scientific Computing*, 29(2):710–728, April 2007.
- 2006 Alicja Smoktunowicz, Jesse L. Barlow, and Julien Langou. **A note on the error analysis of classical Gram-Schmidt.** *Numerische Mathematik*, 105(2):299–313, December 2006.
- 2006 Stanimire Tomov, Julien Langou, Jack Dongarra, Andrew Canning, and Lin-Wang Wang. **Conjugate-gradient eigenvalue solvers in computing electronic properties of nanostructure architectures.** *Int. J. Computational Science and Engineering*, 2(3/4):205–212, 2006.
- 2006 Luc Giraud, Julien Langou, and Guillaume Sylvand. **On the parallel solution of large industrial wave propagation problems.** *Journal of Computational Acoustics*, 14(1):83–111, March 2006.
- 2006 George Bosilca, Zizhong Chen, Jack Dongarra, Victor Eijkhout, Graham E. Fagg, Erika Fuentes, Julien Langou, Piotr Luszczyk, Jelena Pjesivac-Grbovic, Keith Seymour, Haihang You, and Satish S. Vadiyar. **Self Adapting Numerical Software (SANS) Effort.** *IBM Journal of Research and Development*, 50(2/3):223–238, 2006.
- 2005 Luc Giraud, Julien Langou, and Miroslav Rozložník. **On the loss of orthogonality in the Gram-Schmidt orthogonalization process.** *Computers and Mathematics with Applications*, 50:1069–1075, 2005.
- 2005 Luc Giraud, Julien Langou, Miroslav Rozložník, and Jasper van den Eshof. **Rounding error analysis of the classical Gram-Schmidt orthogonalization process.** *Numerische Mathematik*, 101(1):87–100, July 2005.
- 2005 Valérie Frayssé, Serge Gratton, Luc Giraud, and Julien Langou. **Algorithm 842: A set of GMRES routines for real and complex arithmetics on high performance computers.** *ACM Trans. Math. Software*, 31(2):228–238, June 2005.
- 2005 Iain S. Duff, Luc Giraud, Julien Langou, and Émeric Martin. **Using spectral low rank preconditioners for large electromagnetic calculations.** *Int. J. Numerical Methods in Engineering*, 62(3):416–434, 2005.
- 2004 Luc Giraud, Serge Gratton, and Julien Langou. **A rank- k update procedure for reorthogonalizing the orthogonal factor from modified Gram-Schmidt.** *SIAM J. Matrix Analysis and Applications*, 25(4):1163–1177, August 2004.

- 2003 Luc Giraud and Julien Langou. **A robust criterion for the modified Gram-Schmidt algorithm with selective reorthogonalization.** *SIAM J. Scientific Computing*, 25(2):417–441, November 2003.
- 2002 Luc Giraud and Julien Langou. **When modified Gram-Schmidt generates a well-conditioned set of vectors.** *IMA J. Numerical Analysis*, 22:521–528, October 2002.

Papers accepted for publications

- 2006 Alfredo Buttari, Victor Eijkhout, Julien Langou, and Salvatore Filippone. **Performance optimization and modeling of blocked sparse kernels.** Accepted for publication in *International Journal of High Performance Computing Applications*.
- 2006 Julien Langou, Zizhong Chen, George Bosilca, and Jack Dongarra. **Recovery patterns for iterative methods in parallel unstable environment.** Accepted for publication in *SIAM J. on Scientific Computing*.

Paper in Proceedings

- 2006 Alfredo Buttari, Jack Dongarra, Jakub Kurzak, Julien Langou, Piotr Luszczek, and Stanimire Tomov. **The impact of multicore on math software.** In *the Proceedings of workshop on state-of-the-art in scientific and parallel computing (Para06)*. Springer’s Lecture Notes in Computer Science, pages xx–xx, Umeå, Sweden, June 2006.
- 2006 Alex Zunger, Alberto Franceschetti, Gabriel Bester, Wesley B. Jones, Kwiseon Kim, Peter A. Graf, Ling-Wang Wang, Andrew Canning, Osni Marques, Christof Voemel, Jack Dongarra, Julien Langou, and Stanimire Tomov. **Predicting the electronic properties of 3D, million-atom semiconductor nanostructure architectures.** In *Journal of Physics: Conference Series*, volume 46, pages 292–298, 2006.
- 2006 Julie Langou, Julien Langou, Piotr Luszczek, Jakub Kurzak, Alfredo Buttari, and Jack Dongarra. **Exploiting the performance of 32 bit floating point arithmetic in obtaining 64 bit accuracy (revisiting iterative refinement for linear systems).** In *ACM/IEEE SC 2006 Conference (SC’06)*, page 50, November 2006.
- 2005 Julien Langou, George Bosilca, Graham Fagg, and Jack Dongarra. **Hash functions for datatype signatures in MPI.** In B. Di Martino et al., editor, *the Proceedings of EuroPVM/MPI*, Springer’s Lecture Notes in Computer Science 3666, pages 76–83, Sorrento, Italy, September 2005.
- 2005 Wesley B. Jones, Gabriel Bester, Andrew Canning, Alberto Franceschetti, Peter A. Graf, Kwiseon Kim, Julien Langou, Lin-Wang Wang, Jack Dongarra, and Alex Zunger. **NanoPSE: A nanoscience problem solving environment for atomistic electronic structure of semiconductor nanostructures.** In *Journal of Physics: Conference Series*, volume 16, pages 277–282, 2005.

- 2005 Zizhong Chen, Graham E. Fagg, Edgar Gabriel, Julien Langou, Thara Angskun, George Bosilca, and Jack Dongarra. [Building fault survivable MPI programs with FT-MPI using diskless-checkpointing](#). In *the Proceedings of the tenth ACM SIGPLAN symposium on Principles and Practice of Parallel Programming (PPoPP)*, pages 213–223, Chicago, IL, USA, June 2005.
- 2005 Stanimire Tomov, Julien Langou, Andrew Canning, Lin-Wang Wang, and Jack Dongarra. [Comparison of nonlinear conjugate-gradient methods for computing the electronic properties of nanostructure architectures](#). In Vaidy S. Sunderman, Geert Dick van Albada, Peter M.A. Sloot, and Jack J. Dongarra, editors, *the Proceedings of the 5th International Conference on Computational Science (ICCS)*. Springer’s Lecture Notes in Computer Science 3514, Part III, pages 317–235, Atlanta, GA, USA, May 2005. Springer Verlag.
- 2003 Guillaume Alléon, Bruno Carpentieri, Iain S. Duff, Luc Giraud, Julien Langou, Émeric Martin, and Guillaume Sylvand. [Efficient parallel iterative solvers for the solution of large dense linear systems arising from the boundary element method in electromagnetism](#). In *the Proceedings of the International Conference on Supercomputing in Nuclear Application (SNA)*, Paris, September 2003.

Technical Reports

- 2007 James Demmel, Jack Dongarra, Beresford Parlett, William Kahan, Ming Gu, David Bindel, Yozo Hida, Xiaoye Li, Osni Marques, E. Jason Riedy, Christof Voemel, Julien Langou, Piotr Luszczek, Jakub Kurzak, Alfredo Buttari, Julie Langou, and Stanmire Tomov. [Prospectus for the next LAPACK and ScaLAPACK libraries](#). LAPACK Working Note 181, February 2007.
- 2006 Marc Baboulin, Luc Giraud, Serge Gratton, and Julien Langou. [Parallel tools for solving incremental dense least squares problems](#). LAPACK Working Note 179, September 2006. Submitted to *Advances in Engineering Software*.

Book Chapters

- 2006 Jack Dongarra, Victor Eijkhout, and Julien Langou. *Handbook of Linear Algebra*, [chapter 77: Summary of Software for Linear Algebra Freely Available on the Web](#), pages 77:1–3. CRC press, 2006.
- 2006 Zhaojun Bai, James Demmel, Jack Dongarra, Julien Langou, and Jenny Wang. *Handbook of Linear Algebra*, [chapter 75: LAPACK](#), pages 75:1–24. CRC press, 2006.
- 2006 Jack Dongarra, Victor Eijkhout, and Julien Langou. *Handbook of Linear Algebra*, [chapter 74: BLAS](#), pages 74:1–7. CRC press, 2006.

2006 Victor Eijkhout, Julien Langou, and Jack Dongarra. *Frontiers of Parallel Processing for Scientific Computing*, [chapter 13: Parallel Linear Algebra Software](#), pages 233–247. SIAM Software, Environments and Tools. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 2006.

Manuscript

2003 Julien Langou. *Iterative methods for solving linear systems with multiple right-hand sides*. Ph.D. dissertation, INSA Toulouse, June 2003.