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Born November 8, 1980.

French

CURRENT POSITION

Associate professor (Maître de conférence habilité à diriger des recherches) in computer science at Université Grenoble-Alpes.

PAST ACTIVITY AND QUALIFICATION

- 2013–2016 **Visiting researcher**, CNRS, INRIA, AND OPENDREAMKIT
Inria/LIP team AriC. *Calcul parallèle, calcul formel, théorie des codes.*
- Nov. 2014 **Habilitation à diriger des recherches**, UNIV. J. FOURIER, GRENOBLE 1
“Calcul algébrique fiable et haute performance”. Nov. 2014. **Chair** : B. Plateau. **Referees** :
D. Augot, M. Giesbrecht, L. Grigori. **Examiners** : J-G. Dumas, J-C. Faugère, E. Kaltofen.
- Since Dec. 2008 **Associate professor in Computer Science**, UNIV. J. FOURIER, GRENOBLE 1
Équipe Inria/LIG MOAIS, then LJK-CASYS. *Parallel computing, computer algebra, coding theory.*
- 2008 **Acting Assistant Professor**, DEPT. OF MATHS, U. OF WASHINGTON, WA, USA
superised by W. Stein. *Mathematical software (Sage) and computational number theory.*
- 2007 **Postdoc**, SYMBOLIC COMP. GROUP, U. OF WATERLOO, ON, CANADA
supervised by G. Labahn. *Mathématique software (Maple) and exact linear algebra.*
- 2003–2006 **PhD. in applied Mathematics**, UNIV. GRENOBLE 1, J. FOURIER
“Algèbre linéaire exacte efficace : le calcul du polynôme caractéristique”. Sept. 06. **Advisors** : J-G. Dumas & D. Duval. **Chair** : J. Della-Dora. **Referees** : G. Villard, L. Giraud.
Examiners : L. M. Pardo, J-L. Roch.
- 2002–2003 **DEA (MSc) in applied Mathematics**, UNIV. GRENOBLE 1, J. FOURIER
“Calcul du polynôme caractéristique dans un corps fini”. **Advisors** : J-G. Dumas & D. Saunders.
- 2000–2003 **Engineer diploma in Computer Sc. and applied Maths** ENSIMAG-INPG

RESEARCH PROJECTS

- 2015–2019 **H2020 OpenDreamKit : Open Dig. Research Env. Toolkit for the Adv. of Maths.** LEAD PI
- 2012–2015 **ANR HPAC : High Performance Algebraic Computing** INVOLVED AT 70%
- 2014–2016 **ADT Inria. Actis : Algorithmic Coding Theory in Sage** EXTERNAL PARTNER
- 2012–2014 **Inria associate team with NCSU, USA. QOLAPS** MEMBER
- 2010–2011 **PEPS CNRS Software tools for high performance algebraic computing.** LEADER
- 2008 **PIMS Postdoc fellowship award** PACIFIC INSTITUTE FOR MATHEMATICAL SCIENCES

PHD. SUPERVISION AND COMITEES

2016–... **D. Lucas,**

PHD. CO-SUPERVISOR, UJF

- 2012–2015 **Z. Sultan**, PHD. CO-SUPERVISOR, UJF
Algèbre linéaire parallèle adaptative et générique
- 2013 **A. Zeh**, PHD. DEFENSE EXAMINER, UNIV. ULM, GERMANY
Algebraic Soft and Hard-decision decoding of Generalized Reed-Solomon and Cyclic Codes
- 2012 **Z. Sultan**, *Adaptive Parallel Elimination for Algebraic attacks.* MSc INTERNSHIP, UJF
- 2009 **T. Stalinski**, *Calculs pair à pair sur machines non sûres.* MSc INTERNSHIP, UJF

INTERNATIONAL COLLABORATIONS

- NCSU (NC, USA)* with **E. Kaltofen**, within the Inria associate team QOLAPS 2012–2015.
- U. of Washington (USA)* with **W. Stein**, postdoc, 2008 (1 year).
- U. of Waterloo (Canada)* with **G. Labahn, A. Storjohann**, postdoc, 2007 (1 year).
- U. de Cantabria (Espagne)* with **L.M. Pardo, C. Beltràn**, PhD. mobility, 2004–2005 (2×3 months).
- U. of Delaware (DE, USA)* with **D. Saunders, Z. Wan**, MSc. internship, 2003 (4 months).

ANIMATION AND RESEARCH COMMUNITY INVOLVMENT

Associate editor

ACM Transactions On Mathematical Software, since 2012

Conference program committees

software committee member for ISSAC'16

PC member for ISSAC'09

Poster committee member for ISSAC'08

Referee of about 6-8 articles per year for journals and conferences including : ISSAC, J. Complexity, TCS, TC, AAEC, SPAA, ISPDC, AMC, STACS, PARCO ...

Organizing committees

General Chair of PASCO'15 (Bath, UK)

Co-organiser of the Codes and Crypto. Days 2014 in Grenoble

Co-organiser of the minisym. *Exact linear algebra* at SIAM App. Algebraic Geometry 13 (CO, USA)

Co-organiser of the 2011 and 2013 editions of the National Computer Algebra Days (JNCF) in Luminy

Treasurer and local organiser of ISSAC'12 in Grenoble

Local co-organiser of PASCO'10 in Grenoble

1 Publications et production scientifique

Book chapters			2
	J. Symbolic Computation	2	
Journals	Parallel Computing	1	5
	J. Number Theory	1	
	ACM Trans. Math. Software	1	
Refereed international conferences of rank A	ISSAC	12	13
	Euro-Par	1	
Other refereed conferences			6

Awards

- [A-4] J.-G. DUMAS, C. PERNET et Z. SULTAN. “Computing the Rank Profile Matrix”. In : *Proc ISSAC’15*. Distinguished paper award. Bath, United Kingdom : ACM, 2015, p. 149–156. DOI : [10.1145/2755996.2756682](https://doi.org/10.1145/2755996.2756682).

Book chapters

- [B-9] A. CASAMAYOU, G. CONNAN, T. DUMONT, L. FOUSSE, F. MALTEY, M. MEULIEN, M. MEZZAROBBA, C. PERNET, N. M. THIÉRY et P. ZIMMERMANN. “Calcul mathématique avec Sage”. Français. In : Chap. 8 : Algèbre linéaire. Amazon, 2013, p. 468.
- [B-10] J.-G. DUMAS et C. PERNET. “Computational linear algebra over finite fields”. In : *Handbook of Finite Fields*. Sous la dir. de G. L. MULLEN et D. PANARIO. Discrete Maths and Its Applications. Chap. 13.4 : Linear algebra over finite fields. Chapman & Hall / CRC, 2013, p. 514–528.

Refereed international journals

- [J-1] J.-G. DUMAS, C. PERNET et Z. SULTAN. “Fast Computation of the Rank Profile Matrix and the Generalized Bruhat Decomposition”. In : *Journal of Symbolic Computation* (2016). [hal-01251223](https://hal.archives-ouvertes.fr/hal-01251223). Accepted.
- [J-3] J.-G. DUMAS, T. GAUTIER, C. PERNET, J.-L. ROCH et Z. SULTAN. “Recursion based parallelization of exact dense linear algebra routines for Gaussian elimination”. In : *Parallel Computing* (2015). DOI : [10.1016/j.parco.2015.10.003](https://doi.org/10.1016/j.parco.2015.10.003).
- [J-12] C.-P. JEANNEROD, C. PERNET et A. STORJOHANN. “Rank-profile revealing Gaussian elimination and the CUP matrix decomposition”. In : *Journal of Symbolic Computation* 56 (2013), p. 46–68. DOI : [10.1016/j.jsc.2013.04.004](https://doi.org/10.1016/j.jsc.2013.04.004).
- [J-19] C. PERNET et W. STEIN. “Fast computation of Hermite normal forms of random integer matrices”. In : *Journal of Number Theory* 130.7 (juil. 2010), p. 1675–1683. DOI : [10.1016/j.jnt.2010.01.017](https://doi.org/10.1016/j.jnt.2010.01.017).
- [J-22] J.-G. DUMAS, P. GIORGI et C. PERNET. “Dense Linear Algebra over Word-Size Prime Fields : the FFLAS and FFPACK Packages”. In : *ACM Transactions on Mathematical Software* 35.3 (2008), p. 1–42. DOI : [10.1145/1391989.1391992](https://doi.org/10.1145/1391989.1391992).

Refereed international conference proceedings of rank A

- [A-2] C. PERNET. “Computing with Quasiseparable Matrices”. In : *Proc. ISSAC’16*. [hal-01264131](https://hal.archives-ouvertes.fr/hal-01264131). ACM, 2016. DOI : [10.1145/2930889.2930915](https://doi.org/10.1145/2930889.2930915).
- [A-4] J.-G. DUMAS, C. PERNET et Z. SULTAN. “Computing the Rank Profile Matrix”. In : *Proc ISSAC’15*. Distinguished paper award. Bath, United Kingdom : ACM, 2015, p. 149–156. DOI : [10.1145/2755996.2756682](https://doi.org/10.1145/2755996.2756682).
- [A-6] J.-G. DUMAS, T. GAUTIER, C. PERNET et Z. SULTAN. “Parallel Computation of Echelon Forms”. English. In : *Proc. Euro-Par 2014 Parallel Processing*. T. 8632. LNCS. Springer, 2014, p. 499–510. DOI : [10.1007/978-3-319-09873-9_42](https://doi.org/10.1007/978-3-319-09873-9_42).
- [A-7] E. L. KALTOFEN et C. PERNET. “Sparse Polynomial Interpolation Codes and Their Decoding Beyond Half the Minimum Distance”. In : *Proc. ISSAC’14*. Kobe, Japan : ACM, 2014, p. 272–279. DOI : [10.1145/2608628.2608660](https://doi.org/10.1145/2608628.2608660).
- [A-11] J.-G. DUMAS, C. PERNET et Z. SULTAN. “Simultaneous Computation of the Row and Column Rank Profiles”. In : *Proc. ISSAC’13*. ACM Press, 2013. DOI : [10.1145/2465506.2465517](https://doi.org/10.1145/2465506.2465517).
- [A-14] M. T. COMER, E. L. KALTOFEN et C. PERNET. “Sparse Polynomial Interpolation and Berlekamp/Massey Algorithm That Correct Outlier Errors in Input Values”. In : *Proc. ISSAC’12*. Juil. 2012. DOI : [10.1145/2442829.2442852](https://doi.org/10.1145/2442829.2442852).

- [A-18] M. KHONJI, C. PERNET, J.-L. ROCH, T. ROCHE et T. STALINSKI. “Output-sensitive decoding for redundant residue systems”. In : *ISSAC’10*. Munich, Germany : ACM Press, 2010, p. 265–272. DOI : [10.1145/1837934.1837985](https://doi.org/10.1145/1837934.1837985).
- [A-20] B. BOYER, J.-G. DUMAS, C. PERNET et W. ZHOU. “Memory efficient scheduling of Strassen-Winograd matrix multiplication algorithm”. In : *Proc. ISSAC’09*. Seoul, Corea : ACM Press, 2009. DOI : [10.1145/1576702.1576713](https://doi.org/10.1145/1576702.1576713).
- [A-21] J.-G. DUMAS, C. PERNET et D. SAUNDERS. “On finding multiplicities of characteristic polynomial factors of black-box matrices”. In : *Proc. ISSAC’09*. Seoul, Corea : ACM Press, 2009. DOI : [10.1145/1576702.1576713](https://doi.org/10.1145/1576702.1576713).
- [A-23] C. PERNET et A. STORJOHANN. “Faster algorithms for the characteristic polynomial”. In : *Proc. ISSAC’07*. Waterloo, ON, Canada : ACM Press, 2007, p. 307–314. DOI : [10.1145/1277548.1277590](https://doi.org/10.1145/1277548.1277590).
- [A-26] J.-G. DUMAS, C. PERNET et Z. WAN. “Efficient Computation of the Characteristic Polynomial”. In : *Proc. ISSAC’05*. Beijing, China : ACM Press, juil. 2005. DOI : [10.1145/1073884.1073905](https://doi.org/10.1145/1073884.1073905).
- [A-28] J.-G. DUMAS, P. GIORGI et C. PERNET. “FFPACK : Finite Field Linear Algebra Package”. In : *Proc. ISSAC’04*. Santander, Spain : ACM Press, juil. 2004. DOI : [10.1145/1005285.1005304](https://doi.org/10.1145/1005285.1005304).
- [A-29] J.-G. DUMAS, T. GAUTIER et C. PERNET. “Finite Field Linear Algebra Subroutines”. In : *Proc. ISSAC’02*. Lille, France : ACM Press, juil. 2002. DOI : [10.1145/780506.780515](https://doi.org/10.1145/780506.780515).

Other refereed conference proceedings

- [O-5] B. BOYER, J.-G. DUMAS, P. GIORGI, C. PERNET et B. D. SAUNDERS. “Elements of Design for Containers and Solutions in the LinBox library”. In : *Proc. ICMS’2014*. LNCS. Springer, août 2014, p. 654–662. DOI : [10.1007/978-3-662-44199-2_98](https://doi.org/10.1007/978-3-662-44199-2_98).
- [O-8] M. BARBIER, C. PERNET et G. QUINTIN. “On decoding of quasi-BCH codes”. In : *Proc. WCC’13*. hal-00768566. Bergen, Norway, 2013.
- [O-13] A. KUMAR, J.-L. ROCH et C. PERNET. “Secured Outsourced Linear Algebra”. In : *SAFECOMP 2013 FastAbstract*. hal-00926445. Toulouse, France, sept. 2013.
- [O-16] M. ALBRECHT et C. PERNET. “Efficient Decomposition of Dense Matrices over GF(2)”. In : *Proc. of the Workshop on Tools for Cryptanalysis*. arXiv:cs.MS/1006.1744. Juin 2010.
- [O-17] J.-G. DUMAS, T. GAUTIER, C. PERNET et B. SAUNDERS. “LinBox Founding Scope Allocation, Parallel Building Blocks, and Separate Compilation”. In : *Proc. ICMS 2010*. LNCS. Springer, 2010, p. 77–83. DOI : [10.1007/978-3-642-15582-6_16](https://doi.org/10.1007/978-3-642-15582-6_16).
- [O-25] J.-G. DUMAS, C. PERNET et J.-L. ROCH. “Adaptive Triangular System Solving”. In : *Challenges in Symbolic Computation Software*. Dagstuhl Seminar Proceedings 06271. 2006.

Tech. reports

- [T-15] M. ALBRECHT, G. BARD et C. PERNET. *Efficient Dense Gaussian Elimination over the Finite Field with Two Elements*. Rapp. tech. arXiv:cs.SC/1111.6549. Nov. 2011.
- [T-24] C. PERNET et A. STORJOHANN. *Frobenius form in expected matrix multiplication time over sufficiently large fields*. Rapp. tech. U. of Waterloo, Ontario, Canada., 2007.
- [T-27] C. PERNET, A. RONDEPIERRE et G. VILLARD. *Computing the Kalman form*. Rapp. tech. arXiv:cs/0510014. Laboratoire Jean Kuntzmann, Grenoble, oct. 2005.
- [T-30] C. PERNET. *Implementation of Winograd’s fast matrix multiplication over finite fields using ATLAS level 3 BLAS*. Rapp. tech. Laboratoire Informatique et Distribution, juil. 2001.

Posters

- E. KALTOFEN, C. PERNET, A. STORJOHANN, C. WADDELL. , *Linear System Solving With Parametric Entries By Error Correction and Cabay Termination*, ISSAC 2015.

C. PERNET ET Z. WAN. ,

LU Based Algorithms for the Characteristic Polynomial over a Finite Field, ISSAC'03.

M. BRASSEL, C. PERNET ET P. GIORGI. ,

LUDivine : A Symbolic Block LU Factorisation of Matrices over a Finite Field using BLAS, ECCAD'03.

Invited plenary talks

Exact linear algebra algorithmic : theory and practice, ISSAC'15 : tutorial speaker, 2015.

Computing canonical forms in exact linear algebra, Cours plénier à ECRYPT II, Grèce, 2012.

Elimination and Echelon forms in exact linear algebra, ECCAD'11, Waterloo. Canada, 2011.

The LinBox library, Combinatorial and Algebraic Topology, Sandia Labs, Santa Fe, USA, 2009.

Calcul intensif, algèbre linéaire exacte et applications, 1ère journée du GDR-IM, IHP, Paris, 2009.

Parallel perspectives for the LinBox library, Interactive Parallel Comp., MSRI, Berkeley, USA, 2007.

Invited talks in conferences and workshops

Parallel computation of echelon forms and rank profiles, SIAM Parallel Processing, 2014.

(Sparse) Interpolation with Outliers, SIAM App. Algebraic Geometry, 2013.

Elimination and Echelon forms in exact linear algebra, SIAM Applied Algebraic Geometry, 2011.

Parallel adaptive computing with Kaapi middleware, 5th workshop of the Inria-Illinois joint lab. for petascale comp., Urbana-Champaign, USA, 2009.

Exact linear algebra tools for computer assisted proofs, Dagstuhl Seminar, Allemagne, 2009.