Publications - 2010

1. Reviewed Journal Papers and Monographs

1. J. Lebrun, "Normal forms in statistical signal processing," *Radon Series on Computational and Applied Mathematics*, Austrian Academy of Sciences, 3:107–125, 2007.

2. J. Lebrun and P. Comon, "Blind identification of communication channels: symbolic solutions algorithms," *Applicable Algebra in Engineering, Communication and Computing*, Springer, 17(6):471–485, 2006.

3. J. Lebrun and I. Selesnick, "Gröbner bases and wavelet design," *Journal of Symbolic Computation*, Elsevier, 37(2):227–259, 2004.

4. J. Lebrun and M. Vetterli, "High order balanced multiwavelets: Theory, factorization and design," *IEEE Transactions on Signal Processing*, 49(9):1918–1930, 2001.

5. J. Lebrun and M. Vetterli, "Balanced multiwavelets theory and design," *IEEE Transactions on Signal Processing*, 46(4):119–125, 1998.

2. Invited Talks at Conference

6. J. Lebrun, "Parametric normal forms in digital Communications," Invited presentation at *12th IMACS Conference on Applications of Computer Algebra*, Varna, Bulgaria, June 26–29 2006.

7. J. Lebrun, "Normal form methods in statistical signal processing," Invited presentation at *Special Semester on Gröbner Bases and Related Methods 2006: Grbner Bases in Control Theory and Signal Processing*, Radon Institute for Computational and Applied Mathematics, Austrian Academy of Sciences, Linz, Austria, May 18–19 2006.

8. J. Lebrun, "Filter design using Groebner bases," Invited presentation at *COCOA workshop on Applications of Commutative Algebra*, Catania, Italy, Apr. 3–6 2002.

9. J. Lebrun, "Wavelet design using Groebner bases and relinearization techniques," Invited presentation at *7th IMACS Conference on Applications of Computer Algebra*, Albuquerque, NM, USA, May 31-June 3 2001.

10. J. Lebrun, "Wavelets applications to EMC: Introduction," Invited tutorial given at the *14th International IEEE Symposium and Technical Exhibition on Electromagnetic Compatibility*, Zurich, Switzerland, Feb. 20–22 2001.

3. Reviewed Papers in Conference Proceedings

11. M. Hesse, J. Lebrun, L. Lampe and L. Deneire, "Separable implementation of L2-orthogonal STC CPM with fast decoding," In *Proc. IEEE ICC 2009 (International Conference on Communications)*, Dresden, Germany, June 14–18 2009.

12. J.-M. Luneau, J. Lebrun and S. H. Jensen, "Complex wavelet modulation subbands for speech compression," In *Proc. IEEE DCC 2009 (Data Compression Conference)*, Snowbird, USA, Mar. 16–18 2009.

13. M. Hesse, J. Lebrun and L. Deneire, "Full rate L2-orthogonal space-time CPM for three antennas," In *Proc. IEEE GLOBECOM 2008 (Global Communications Conference)*, New Orleans, USA, Nov. 30–Dec. 4 2008. DOI: 10.1109/GLOCOM.2008.ECP.698

14. J.-M. Luneau, J. Lebrun and S. H. Jensen, "Complex wavelet based modulation analysis," In *Proc. IEEE Asilomar 2008 (Asilomar Conference on Signals, Systems, and Computers)*, Pacific Grove, USA, Oct. 26–29 2008.

15. M. Hesse, J. Lebrun and L. Deneire, "Optimized L2-orthogonal STC CPM for 3 antennas," In *Proc. IEEE ISWCS 2008 (International Symposium on Wireless Communication Systems)*, pp. 463–467, Reykjavik, Iceland, Oct. 21–24 2008. DOI: 10.1109/ISWCS.2008.4726099

16. M. Hesse, J. Lebrun and L. Deneire, "L2 orthogonal space time code for continuous phase modulation," In *Proc. IEEE SPAWC 2008 (Signal Processing Advances in Wireless Communications)*, pp. 401–405, Recife, Brazil, Jul 6–9 2008. DOI: 10.1109/SPAWC.2008.4641638

17. J.-M. Luneau, J. Lebrun and S. H. Jensen, "Complex wavelet modulation sub-bands and speech," In *Proc. ISCA ITRW 2008 (ISCA Tutorial and Research Workshop on Speech Analysis and Processing for Knowledge Discovery)*, Aalborg, Denmark, June 4–6 2008.

18. M. Hesse, M. Mailand, H.J. Jentschel, L. Deneire and J. Lebrun, "Semiblind cancellation of IQ-imbalances," In *Proc. IEEE ICC 2008 (International Conference on Communications)*, pp. 5023–5027, Beijing, China, May 19–23, 2008. DOI: 10.1109/ICC.2008.942

19. J. Lebrun and P. Comon, "A linear algebra approach to systems of polynomial equations with application to digital communications," In *Proc. Eusipco 2004 (European Signal Processing Conference)*, Wien, Austria, Sep. 7–10 2004.

20. J. Lebrun and P. Comon, "Une approche algbrique de l'identification aveugle de canaux de communications," In *Proc. Colloque GRETSI 2003*, Paris, Sep. 8–11 2003.

21. P. Comon and J. Lebrun, "Critres de contraste dterministes pour la sparation de sources," In *Proc. Colloque GRETSI 2003*, Paris, Sep. 8–11 2003.

22. J. Lebrun and P. Comon, "An algebraic approach to blind identification of communication channels," In *Proc. IEEE ISSPA 2003 (International Symposium on Signal Processing and Its Applications)*, Paris, July 1–4, 2003.

23. P. Comon and J. Lebrun, "Contrast functions for deterministic blind source separation," In *Proc. IEEE SPAWC 2003 (Signal Processing Advances in Wireless Communications)*, Rome, Italy, June 15–18 2003.

24. J. Lebrun and M. Vetterli, "Balancing order and some other discrete-time properties of multiwavelets," In *Proc. SPIE conf. on Wavelet Applications in Signal and Image Processing VII*, Denver, USA, July 1999. DOI: 10.1117/12.366764

25. C. Weidmann, J. Lebrun and M. Vetterli, "Significance tree image coding using balanced multiwavelets," in *Proc. IEEE ICIP 98 (International Conference on Image Processing)*, Chicago, USA, Oct. 1998.

26. J. Lebrun and M. Vetterli, "High order balanced multiwavelets," in *Proc. IEEE ICASSP 98 (International Conference on Acoustics, Speech and Signal Processing)*, Seattle, USA, May 1998.

27. J. Lebrun and M. Vetterli, "Balanced multiwavelets," in *Proc. IEEE ICASSP 97 (International Conference on Acoustics, Speech and Signal Processing)*, Munich, Germany, Apr. 1997.

5. Talks at Workshops

28. J. Lebrun, "Balancing multiwavelets using Grbner bases," invited talk at *Mthodes algbriques en traitement du signal*, cole Polytechnique, Palaiseau, France, dc. 2001.

29. J. Lebrun and M. Vetterli, "High order balanced multiwavelets: Recent results," talk at *First Wavelets and Applications Workshop*, Monte Verita, Switzerland, Sep. 1998.

6. Talks at Seminars

30. J. Lebrun, "Modulation models for speech," talk at *Journe du Ple Images/Signaux/Systmes*, I3S, Universit de Nice, Sophia Antipolis, Jul. 13 2007.

31. J. Lebrun, "Intertwining algebraic geometry and signal processing," invited talk at *Multimedia Information and Signal Processing*, Dept. of Electronic Systems, Aalborg University, May 3, 2007.

32. J. Lebrun, " Algebraic methods in digital communications," Invited talk at *The Telecommunications Forum*, ftw. (Telecommunications Research Centre Vienna) - Vienna University of Technology, Jan. 16 2004.

33. J. Lebrun, "Mthodes algbriques pour le traitement du signal et les communications I & II," "Une approche algbrique de l'identification aveugle de canaux de communications," seminars at *La Table Ronde*, Projet GALAAD, INRIA Sophia Antipolis, Mar.-Apr. 2003.

34. J. Lebrun, "Balancing multiwavelets using Grbner bases," Invited talk at *Research Institute for Symbolic Computation*, J. Kepler University, Linz, Austria, Mar. 2002.

35. J. Lebrun, "Wavelets design using Grbner bases," Invited talk at *Dept. of Mathematics*, University of Innsbruck, Austria, Mar. 2002.

7. Books

36. J. Lebrun, **Balancing MultiWavelets**, PhD Thesis, Dept. of Communication Systems, Swiss Federal Institute of Technology, Lausanne, May 2000.

37. J. Lebrun, **Intégration stochastique Hilbertienne**, Master thesis, Dept. of Mathematics, Swiss Federal Institute of Technology, Lausanne, Mar. 1996.

8. Chapters in Books

38. T. Blu and J. Lebrun, "Linear time-frequency analysis II: wavelet-type representations," book chapter in **Time-Frequency Analysis - Concepts and Methods**, ed. F. Hlawatsch and F. Auger - Wiley-ISTE, Aug. 2008. ISBN: 9781848210332

39. T. Blu et J. Lebrun, "Analyse temps-frquence linaire II: Reprsentations de type ondelettes," chapitre du livre **Temps-frquence: Concepts et outils**, Collection IC2, ed. F. Hlawatsch, F. Auger et J.-P. Ovarlez - Herms, Mar. 2005. ISBN: 2746210336

10. Technical Reports

40. J.-M. Luneau, J. Lebrun and S. H. Jensen, "Complex wavelet based envelope analysis for analytic spectro-temporal signal processing," Aalborg University Scientific Report R08-1001, ISSN: 0908-1224, Feb. 2008. `http://vbn.aau.dk/fbspretrieve/14130303`

41. M. Hesse, J. Lebrun and L. Deneire, "L2 OSTC-CPM: Theory and design," Rapport de recherche I3S/RR-2008-03, Feb. 2008. `http://hal.inria.fr/inria-0028829`

42. J. Lebrun and P. Comon, "Blind identification of communication channels - Symbolic solutions algorithms," Rapport de recherche I3S/RR-2002-52-FR, Oct. 2002.

43. J. Lebrun and M. Vetterli, "High order balanced multiwavelets: Theory, factorization and design," Tech. report, Dept. of Communication Systems, Swiss Federal Institute of Technology, Lausanne, Feb. 1999.

44. J. Lebrun and M. Vetterli, "Balanced multiwavelets - Theory and design," Tech. report, Dept. of Communication Systems, Swiss Federal Institute of Technology, Lausanne, Feb. 1997.