

# Publications

A.C. Linnenbank

- [1] M. J. van der Horst, A. C. Linnenbank, W. A. Serdijn, and J. R. Long, “Systematic design of a transimpedance amplifier with specified electromagnetic out-of-band interference behavior,” *IEEE Transactions on Circuits and Systems I*, 2009. (in press).
- [2] P. M. van Dam, T. F. Oostendorp, A. C. Linnenbank, and A. van Oosterom, “Non-invasive imaging of cardiac activation and recovery,” *Ann Biomed Eng.*, June 2009.
- [3] A. C. Linnenbank, S. M. Chaldoupi, M. W. van Bommel, A. Elvan, P. Loh, and J. M. de Bakker, “Detecting complex fractionated atrial electrograms in AF: why bipolar recordings should not be used,” *Heart Rhythm Society meeting*, May 2009. (abstract).
- [4] A. C. Linnenbank, P. van Dam, T. F. Oostendorp, P. Bovendeerd, I. Russel, and M. Potse, “A generic model of overall heart geometry for model based studies of electrical, mechanical, and ion-kinetics aspects of the heart,” *4th European Congress for Medical and Biomedical Engineering*, pp. 2548–2551, Nov. 2008. (abstract).
- [5] A. C. Linnenbank, P. G. Postma, M. G. Hoogendijk, P. F. van Dessel, H. L. Tan, and J. M. de Bakker, “Local filtered QRS duration during sodium-channel blockade in brugada syndrome patients,” *IFMBE Proceedings, 14th Nordic-Baltic Conference on Biomedical Engineering and Medical Physics 2008*, pp. 282–285, 2008. (abstract).
- [6] G. J. Boink, A. O. Verkerk, S. C. van Amersfoort, S. J. Tasseron, R. van der Rijt, D. Bakker, A. C. Linnenbank, J. van der Meulen, J. M. de Bakker, J. Seppen, and H. L. Tan, “Engineering physiologically controlled pacemaker cells with lentiviral HCN4 gene transfer,” *J Gene Med.*, vol. 10, pp. 487–97, May 2008.
- [7] M. G. Hoogendijk, M. Potse, A. C. Linnenbank, A. O. Verkerk, H. M. den Ruijter, E. C. Klaver, S. C. M. van Amersfoort, L. Beekman, C. R. Bezzina, A. A. M. Wilde, J. M. de Bakker, and R. Coronel, “Functional conduction block by current-to-load mismatch underlies brugada-type st segment elevation in right-sided structural heart disease,” *American Heart Association Scientific Sessions*, 2008. (abstract).
- [8] A. C. Linnenbank, A. van Oosterom, T. F. Oostendorp, P. F. van Dessel, A. van Rossum, R. Coronel, H. L. Tan, and J. M. de Bakker, “Relative contribution of heart regions to the precordial ecg. an inverse computational approach,” *IFMBE Proceedings, 11th Mediterranean Conference on Medical and Biomedical Engineering and Computing 2007*, vol. 16, pp. 42–45, 2007. (abstract).
- [9] A. C. Linnenbank, A. van Oosterom, T. F. Oostendorp, P. F. van Dessel, A. van Rossum, R. Coronel, H. L. Tan, and J. M. de Bakker, “Non invasive imaging of activation times during drug induced conduction changes,” *IFMBE Proceedings, World Congress on Medical Physics and Biomedical Engineering 2006*, vol. 20, pp. 2536–2539, 2006. (abstract).
- [10] R. Coronel, J. M. de Bakker, F. J. Wilms-Schopman, T. Opthof, A. C. Linnenbank, C. N. Belterman, and M. J. Janse, “Monophasic action potentials and activation recovery intervals

as measures of ventricular action potential duration: experimental evidence to resolve some controversies.,” *Heart Rhythm*, vol. 3, pp. 1043–50, Sep 2006.

- [11] R. Coronel, S. Casini, T. T. Koopmann, F. J. G. Wilms-Schopman, A. O. Verkerk, J. R. de Groot, Z. Bhuiyan, C. R. Bezzina, M. W. Veldkamp, A. C. Linnenbank, A. C. van der Wal, H. L. Tan, P. Brugada, A. A. M. Wilde, and J. M. T. de Bakker, “Response to letters to the editor by priori et al and fontaine et al.,” *Circulation*, vol. 113, no. 16, 2006.
- [12] R. Coronel, S. Casini, T. T. Koopmann, F. J. G. Wilms-Schopman, A. O. Verkerk, J. R. de Groot, Z. Bhuiyan, C. R. Bezzina, M. W. Veldkamp, A. C. Linnenbank, A. C. van der Wal, H. L. Tan, P. Brugada, A. A. M. Wilde, and J. M. T. de Bakker, “Right ventricular fibrosis and conduction delay in a patient with clinical signs of Brugada syndrom: a combined electrophysiological, genetic, histopathologic and computational study,” *Circulation*, vol. 112, pp. 2769–2777, 2005.
- [13] M. van der Horst, A. C. Linnenbank, and A. van Staveren, “Amplitude modulation detection in single stage negative feedback amplifiers due to interfering out of band signals,” *IEEE Trans. Electro Magnetic Compatibility*, vol. 47, pp. 34 – 44, Feb. 2005.
- [14] M. Potse, P. F. van Dessel, A. C. Linnenbank, C. A. Grimbergen, N. M. van Hemel, and J. M. T. de Bakker, “Properties of unipolar electrograms recorded with a multielectrode basket catheter,” *J Electrocardiol*, vol. 37, pp. 1–10, Jan. 2004.
- [15] A. C. Linnenbank, R. Coronel, and J. M. T. de Bakker, “Activation sequence in the heart of a Brugada syndrom patient,” in *World Congress on Medical Physics and Biomedical Engineering*, Aug. 2003.
- [16] M. Potse, A. C. Linnenbank, and P. F. van Dessel, “QRST nondipolar content and dispersion of repolarization,” in *World Congress on Medical Physics and Biomedical Engineering*, Aug. 2003. (abstract).
- [17] M. Potse, A. C. Linnenbank, and P. F. van Dessel, “QRST nondipolar content revisited,” in *Proceedings of the XXXth International Congress on Electrocardiology Helsinki*, vol. 5, June 2003.
- [18] E. R. Jessurun, J. M. T. de Bakker, N. M. van Hemel, T. Opthof, A. C. Linnenbank, P. F. van Dessel, J. J. A. M. Defauw, and A. B. de la Riviere, “Right atrial modification of maze surgery does not affect refractoriness and conduction patterns of human lone atrial fibrillation,” *Europace*, vol. 5, pp. 39–46, Jan. 2003.
- [19] M. Potse, R. Hoekema, A. C. Linnenbank, A. SippensGroenewegen, J. Strackee, J. M. T. de Bakker, and C. A. Grimbergen, “Conversion of left ventricular endocardial positions from patient-independent co-ordinates into biplane fluoroscopic projections,” *Med. & Biol. Eng. & Comput.*, vol. 40, pp. 41–46, Jan. 2002.
- [20] M. Potse, A. C. Linnenbank, and C. A. Grimbergen, “Software design for analysis of multichannel intracardial and body surface electrograms,” *Comput Methods Programs Biomed*, vol. 69, pp. 225–236, Nov. 2002.
- [21] M. Hocini, S. Y. Ho, T. Kawara, A. C. Linnenbank, M. Potse, D. Shah, P. Jais, M. J. Janse, M. Haissaguerre, and J. M. T. de Bakker, “Electrical conduction in canine pulmonary veins: electrophysiological and anatomic correlation,” *Circulation*, vol. 105, pp. 2442–2448, May 2002.
- [22] P. F. H. M. van Dessel, N. M. van Hemel, J. M. de Bakker, A. C. Linnenbank, M. Potse, E. R. Jessurun, A. SippensGroenewegen, and E. F. Wever, “Relation between body surface mapping and endocardial spread of ventricular activation in postinfarction patient,” *J. Cardiovasc. Electrophysiol.*, vol. 12, pp. 1232–1241, Nov. 2001.

- [23] P. F. H. M. van Dessel, J. M. de Bakker, N. M. van Hemel, A. C. Linnenbank, E. R. Jessurun, and J. J. A. M. Defauw, "Pace mapping of postinfarction scar to detect ventricular tachycardia exit sites and zones of slow conduction," *J. Cardiovasc. Electrophysiol.*, vol. 12, pp. 662–670, June 2001.
- [24] T. Kawara, R. Derksen, J. R. de Groot, R. Coronel, S. Tasseron, A. C. Linnenbank, R. N. W. Hauer, H. Kirkels, M. J. Janse, and J. M. T. de Bakker, "activation delay after premature stimulation in chronically diseased human myocardium relates to architecture of interstitial fibrosis," *Circulation*, vol. 104, pp. 3069–3075, Dec. 2001.
- [25] M. Potse, A. C. Linnenbank, A. SippensGroenewegen, and C. A. Grimbergen, "Influence of chronic myocardial infarction on exit site localization of ventricular tachycardia using paced body surface map databases," in *Chicago 2000 World Congress on Biomedical Engineering and Medical Physics*, July 2000. track 7, poster presentation TU–CXH–32, 10:20–11:30 AM.
- [26] M. Potse, A. C. Linnenbank, A. SippensGroenewegen, and C. A. Grimbergen, "Conversion from left ventricular cylinder coordinates to radiographic projections during ECG-guided catheter ablation of cardiac arrhythmias," in *Chicago 2000 World Congress on Biomedical Engineering and Medical Physics*, July 2000. track 7, poster presentation TU–CXH–39, 10:20–11:30 AM.
- [27] M. Potse, A. C. Linnenbank, H. A. P. Peeters, A. SippensGroenewegen, and C. A. Grimbergen, "Continuous localization of cardiac activation sites using a database of multichannel ECG recordings," *IEEE Trans. Biomed. Eng.*, vol. 47, pp. 682–689, May 2000.
- [28] R. Derksen, J. R. de Groot, R. Coronel, J. M. T. de Bakker, A. C. Linnenbank, M. Potse, S. Tasseron, and R. N. W. Hauer, "Decremental conduction due to load mismatch in pattern-grown cell cultures," *European Heart Journal*, vol. 11 suppl. S, p. 238 1302, Aug-Sep 2000. (abstract).
- [29] E. R. Jessurun, J. M. T. de Bakker, N. M. van Hemel, A. C. Linnenbank, J. J. A. M. Defauw, and A. B. de la Riviere, "The role of the atrial modification in MAZE III surgery for lone atrial fibrillation," *European Heart Journal*, vol. 11 suppl. S, p. 667 P3662, Aug-Sep 2000. (abstract).
- [30] M. Potse, A. C. Linnenbank, H. A. P. Peeters, A. SippensGroenewegen, and C. A. Grimbergen, "Continuous localization of cardiac activation sites using a database of multichannel ECG recordings," *IEEE Trans. Biomed. Eng.*, vol. 47, pp. 682–689, May 2000.
- [31] J. M. T. de Bakker, R. Derksen, T. Kawara, S. Tasseron, A. C. Linnenbank, M. Potse, and M. J. Janse, "Load mismatch as a cause of decremental conduction in diseased myocardium," *Circulation*, vol. 100 Suppl. I, p. 836, Nov. 1999. (abstract).
- [32] E. R. Jessurun, J. M. T. de Bakker, N. M. van Hemel, A. C. Linnenbank, J. J. A. M. Defauw, and A. Brutel de la Riviere, "Surgical modification of the right atrium for the abolishment of atrial fibrillation with maze III does not affect fibrillation intervals," *Circulation*, vol. 100 Suppl. I, p. 67, Nov. 1999. (abstract).
- [33] P. F. van Dessel, N. M. van Hemel, J. M. de Bakker, M. Potse, A. C. Linnenbank, E. R. Jessurun, and J. A. Defauw, "Comparison of simultaneous body surface mapping and 64-electrode endocardial mapping of postinfarction ventricular tachycardia exit," *Circulation*, vol. 100 Suppl. I, pp. 655–656, Nov. 1999. (abstract).
- [34] H. A. P. Peeters, A. SippensGroenewegen, E. F. D. Wever, H. Ramanna, A. C. Linnenbank, M. Potse, C. A. Grimbergen, N. M. van Hemel, R. N. W. Hauer, and E. O. Robles de Medina, "Clinical application of an integrated 3-phase mapping technique for localization of the site of origin of idiopathic ventricular tachycardia," *Circulation*, vol. 99, pp. 1300–1311, Mar. 1999.

- [35] J. R. Willemsen, A. C. Linnenbank, P. F. H. M. van Dessel, M. Potse, C. A. Grimbergen, and N. M. van Hemel, "A new method for detecting late potentials using multichannel ECGs," in *Proc. First Joint BMES/EMBS Conf.*, Oct. 1999.
- [36] J. R. Willemsen, A. C. Linnenbank, M. Potse, and C. A. Grimbergen, "Signal averaging of non-stationary noise," in *Proc. First Joint BMES/EMBS Conf.*, Oct. 1999.
- [37] M. Potse, A. C. Linnenbank, and C. A. Grimbergen, "MAPLAB: An extensible software package for analysis of multichannel ECG recordings," in *Proc. 20th Annu. Int. Conf. IEEE EMBS*, pp. I-59-62, Oct. 1998.
- [38] M. Potse, A. C. Linnenbank, P. F. H. M. van Dessel, N. M. van Hemel, and C. A. Grimbergen, "The use of simultaneous multichannel endocardial and surface electrocardiograms for verification of exit site localization using body surface mapping," in *Proc. 20th Annu. Int. Conf. IEEE EMBS*, pp. I-75-78, Oct. 1998.
- [39] A. SippensGroenewegen, H. A. P. Peeters, E. R. Jessurun, A. C. Linnenbank, E. O. Robles de Medina, M. D. Lesh, and N. M. van Hemel, "Body surface mapping during pacing at multiple sites in the human atrium: P-wave morphology of ectopic right atrial activation," *Circulation*, vol. 97, pp. 369-380, Feb. 1998.
- [40] A. SippensGroenewegen, F. X. Roithinger, H. A. P. Peeters, A. C. Linnenbank, P. R. van Hemel, N. M. Steiner, and M. D. Lesh, "Body surface mapping of atrial arrhythmias: Atlas of paced P wave integral maps to localize the focal origin of right atrial tachycardia.," *J. Electrocardiol.*, vol. 31 suppl, pp. 85-91, 1998. (abstract).
- [41] A. C. Linnenbank, J. G. Snel, M. Hocini, M. Potse, J. M. T. de Bakker, and C. A. Grimbergen, "Display of activation fronts on a 3D reconstruction of the left atrium of a dog," in *Proc. 20th Annu. Int. Conf. IEEE EMBS*, pp. I-90-93, Oct. 1998.
- [42] H. A. P. Peeters, A. SippensGroenewegen, E. F. D. Wever, H. Ramanna, A. C. Linnenbank, C. A. Grimbergen, N. M. van Hemel, R. N. W. Hauer, and E. O. Robles de Medina, "Clinical application of a novel integrated three-phase mapping technique for localization of the site of origin of idiopathic ventricular tachycardia," *J. Am. Coll. Cardiol.*, vol. 31 suppl. A, p. 293A, Feb. 1998. (abstract).
- [43] M. Hocini, J. M. T. de Bakker, A. C. Linnenbank, Y. Ho, M. J. Janse, and M. Haissaguerre, "High resolution mapping of the left atrium and the pulmonary veins during pacing and atrial fibrillation in the isolated canine heart," *Circulation*, vol. 99 Suppl. I, pp. 208-209, 1998. (abstract).
- [44] M. Hocini, J. M. T. de Bakker, A. C. Linnenbank, Y. Ho, M. J. Janse, M. Haissaguerre, and J. Bonnet, "High-resolution mapping of the left atrium and its afferent vessels during pacing and atrial fibrillation in canine hearts," in *Lille*, Apr. 1998.
- [45] M. Potse, A. C. Linnenbank, H. A. P. Peeters, and C. A. Grimbergen, "Nondipolar content of body surface QRS and QRST integral maps," in *World Congress on Medical Physics and Biomedical Engineering*, Sept. 1997.
- [46] M. Potse, A. C. Linnenbank, A. SippensGroenewegen, and C. A. Grimbergen, "Continuous localization of ectopic left ventricular activation sites by means of a two-dimensional representation of body surface QRS integral maps," in *Proc. 18th Annu. Int. Conf. IEEE EMBS*, 1996.
- [47] A. Latour, C. A. Grimbergen, H. A. P. Peeters, A. C. Linnenbank, and A. Sippens Groenewegen, "Quantitative algorithm for the localization of the origin of ectopic ventricular beats using catheter pace mapping," in *Proc. 18th Annu. Int. Conf. IEEE EMBS*, 1996.

- [48] A. C. Linnenbank, *On-site recording, analysis, and presentation of multichannel ECG data*. PhD thesis, University of Amsterdam, The Netherlands, Aug. 1996. e-mail: [a.c.linnenbank@amc.uva.nl](mailto:a.c.linnenbank@amc.uva.nl).
- [49] A. C. Linnenbank, A. C. MettingVanRijn, C. A. Grimbergen, and J. M. T. de Bakker, "Choosing the resolution in ad conversion of biomedical signals," in *Intern. Conf. on Electrocardiology*, pp. 198–199, 1995.
- [50] J. G. C. Kemmelings, A. C. Linnenbank, S. L. C. Muilwijk, A. SippensGroenewegen, A. Peper, and C. A. Grimbergen, "Automatic QRS onset and offset detection for body surface QRS integral mapping of ventricular tachycardia," *IEEE Trans. Biomed. Eng.*, vol. 41, no. 9, pp. 830–836, 1994.
- [51] C. A. Grimbergen, A. C. Linnenbank, A. C. MettingVanRijn, and A. Peper, "The implications of skew in multichannel instrumentation," in *World Congress on Medical Physics and Biomedical Engineering*, p. 932, 1994.
- [52] A. C. MettingVanRijn, A. P. Kuiper, A. C. Linnenbank, and C. A. Grimbergen, "Patient isolation in multichannel bioelectric recordings by digital transmission through a single optical fiber," *IEEE Trans. Biomed. Eng.*, vol. 40, pp. 302–308, Mar. 1993.
- [53] C. A. Grimbergen, A. C. MettingVanRijn, A. P. Kuiper, A. C. Linnenbank, and A. Peper, "Instrumentation for the recording and digital processing of multichannel ECG data," in *Proc. 14th Annu. Int. Conf. IEEE EMBS*, pp. 726–727, 1992.
- [54] J. G. C. Kemmelings, A. C. Linnenbank, S. L. C. Muilwijk, A. SippensGroenewegen, A. Peper, and C. A. Grimbergen, "Automatic QRS detection during body surface mapping of ventricular tachycardia," in *Proc. 14th Annu. Int. Conf. IEEE EMBS*, pp. 561–562, 1992.
- [55] A. C. Linnenbank, J. G. C. Kemmelings, S. L. C. Muilwijk, A. Peper, and C. A. Grimbergen, "An effective compression scheme for multilead ECG signals containing ectopic ventricular activation," in *Proc. 14th Annu. Int. Conf. IEEE EMBS*, pp. 527–528, 1992.
- [56] A. C. Linnenbank and E. Furth, "Proofs in an assignment free language," in *Workshop on Assertional Methods* (F. de Boer, A. Ponse, and F. de Vries, eds.), (Amsterdam, The Netherlands), pp. 37–39, CWI/University of Amsterdam, Nov. 1992.
- [57] A. C. Linnenbank, S. L. C. Muilwijk, A. SippensGroenewegen, and C. A. Grimbergen, "Effect of baseline procedures on QRS integral patterns in body surface maps of ventricular tachycardia," in *Proc. 13th Annu. Int. Conf. IEEE EMBS*, pp. 789–790, 1991.
- [58] A. C. Linnenbank, A. SippensGroenewegen, and C. A. Grimbergen, "Artificial neural networks applied in multiple lead electrocardiography: rapid quantitative classification of ventricular tachycardia QRS integral patterns," in *Proc. 12th Annu. Int. Conf. IEEE EMBS*, pp. 1461–1462, 1990.
- [59] A. C. Linnenbank, A. SippensGroenewegen, and C. A. Grimbergen, "Multiple lead ECG analysis using artificial neural networks: classification of ventricular tachycardia QRS integral patterns compared with correlation coefficients," *Circulation*, vol. 82 Suppl, pp. III–741, 1990. (abstract).
- [60] A. C. Linnenbank, "Software to analyse body surface maps," Master's thesis, University of Amsterdam, The Netherlands, 1989.