

NeuroWave Systems Inc.

– List of Publications –

White Paper

- [1] S. Bibian and T. Zikov, "NeuroSENSE® Monitor with WAV_{CNS} Cortical Quantifier: A Deterministic Approach to EEG Analysis," NeuroWave Systems Inc., Cleveland Heights, OH, USA.

Journal and Conference Papers

- [2] G. Agrawal, M. Modarres, T. Zikov and S. Bibian, "NREM sleep staging using WAV_{CNS} index," *Journal of Clinical Monitoring & Computing*, vol. 25, no. 2, pp. 137-142, April 2011.
- [3] S. Bibian, G.A. Dumont and T. Zikov, "Dynamic Behavior of BIS, M-Entropy and NeuroSENSE Brain Function Monitors," *Journal of Clinical Monitoring & Computing*, vol. 25, no. 1, pp. 81-87, February 2011.
- [4] S. Bibian, G.A. Dumont, M. Huzmezan and C.R. Ries, "Patient Variability and Uncertainty Quantification in Anesthesia: Part I - PKPD Modeling and Identification," *Proceedings of the 6th IFAC Symposium on Modeling and Control in Biomedical Systems*, Reims, France, pp. 549-554, September 2006.
- [5] S. Bibian, G.A. Dumont, M. Huzmezan and C.R. Ries, "Patient Variability and Uncertainty Quantification in Anesthesia: Part II - PKPD Uncertainty," *Proceedings of the 6th IFAC Symposium on Modeling and Control in Biomedical Systems*, Reims, France, pp. 555-560, September 2006.
- [6] T. Zikov, S. Bibian, G.A. Dumont, M. Huzmezan and C.R. Ries, "Quantifying Cortical Activity during General Anesthesia using Wavelet Analysis," *IEEE Transactions on Biomedical Engineering*, vol. 53, no. 4, pp. 617-632, April 2006.
- [7] S. Bibian, C.R. Ries, M. Huzmezan and G.A. Dumont, "Introduction to Automated Drug Delivery in Clinical Anesthesia," *European Journal of Control*, vol. 11, no. 6, pp. 535-557, June 2005.
- [8] S. Bibian, G.A. Dumont, M. Huzmezan and C.R. Ries, "Quantifying Uncertainty Bounds in Anesthetic PKPD Models," *Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, San Francisco, CA, pp. 786-789, September 2004.
- [9] S. Bibian, C.R. Ries, M. Huzmezan and G.A. Dumont, "Clinical Anesthesia and Control Engineering: Terminology, Concepts and Issues," *Proceedings of the European Control Conference*, Cambridge, UK, September 2003.
- [10] T. Zikov, S. Bibian, G.A. Dumont, M. Huzmezan and C.R. Ries, "A Wavelet Based De-noising Technique for Ocular Artifact Correction of the Electroencephalogram," *Proceedings of the Second Joint 24th Annual Conference of the Engineering in Medicine and Biology Society and Annual Fall Meeting of the Biomedical Engineering Society*, pp. 98-105, October 2002.
- [11] S. Bibian, T. Zikov, G.A. Dumont, C.R. Ries, E. Puil, H. Ahmadi, M. Huzmezan and B.A. MacLeod, "Estimation of the Anesthetic Depth using Wavelet Analysis of Electroencephalogram," *Proceedings of the 23rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 951-955, October 2001.

Clinical Abstracts

- [12] G. Agrawal, T. Zikov and S. Bibian, "Can NeuroSENSE Depth-of-Anesthesia Monitor be used for Sleep Monitoring in Hospitalized Patients?," *Proceedings of the 2011 Annual Meeting of the American Society of Anesthesiologists*, Chicago, IL, A504, October 2011.
- [13] G. Agrawal, T. Zikov and S. Bibian, "Robust and Real-Time Automatic Detection of Suppression in EEG Signals," *Proceedings of the 2011 Annual Meeting of the American Society of Anesthesiologists*, Chicago, IL, A503, October 2011.
- [14] G. Agrawal, S. Bibian and T. Zikov, "Recommended Clinical Range for WAV_{CNS} Index during General Anesthesia," *Proceedings of the 2010 Annual Meeting of the American Society of Anesthesiologists*, San Diego, CA, A1347, October 2010.
- [15] G. Agrawal, F. Clément, J.L. Scholtes, S. Bibian and T. Zikov, "Relationship between WAV_{CNS} Index and Suppression Ratio," *Proceedings of the 2010 Annual Meeting of the American Society of Anesthesiologists*, San Diego, CA, A1348, October 2010.
- [16] O. Pruszkowski, J. Bresson, N. Liu, T. Chazot and G. Agrawal, "Inter-Hemispheric Agreement of NeuroSENSE and BIS-XP Monitors during General Anesthesia," *Proceedings of the 2010 Annual Meeting of the American Society of Anesthesiologists*, San Diego, CA, A1363, October 2010.
- [17] G. Agrawal, "Real-time Detection of Suppression in EEG," *Abstracts of the 21st Meeting of the European Society for Computing and Technology in Anesthesia and Intensive Care*, Amsterdam, Netherlands, October 2010.
- [18] S. Bibian and T. Zikov, "Predictability of BIS, Entropy and NeuroSENSE," *Abstracts of the 20th Meeting of the European Society for Computing and Technology in Anesthesia and Intensive Care*, Berlin, Germany, September 2009.
- [19] S. Bibian, F. Kaffashi, N. Chakravarthy, T. Zikov and M. Modarres, "NeuroMedic™: An EEG-Based Field Deployable Seizure Detector," *Epilepsia*, vol. 49(suppl. 7), pp. 381-382, 2008.

- [20] S. Bibian, T. Zikov, G.A. Dumont, C.R. Ries and M. Huzmezan, "Suitability of Consciousness Monitors for PD Modeling of Intravenous Anesthetic Drugs," *Abstracts of the 1st World Congress of Total Intravenous Anaesthesia - TCI*, Venice, Italy, September 2007.
- [21] S. Bibian, G.A. Dumont, C.R. Ries and M. Huzmezan, "Suitability of Induction Data to Characterize the Static Drug vs. Response Relationship of Intravenous Drugs," *Abstracts of the 1st World Congress of Total Intravenous Anaesthesia - TCI*, Venice, Italy, September 2007.
- [22] S. Bibian, G.A. Dumont, C.R. Ries and M. Huzmezan, "Process Control Identification Approach Applied to Propofol Pharmacodynamic Modeling," *Abstracts of the 1st World Congress of Total Intravenous Anaesthesia - TCI*, Venice, Italy, September 2007.
- [23] S. Bibian, G.A. Dumont, C.R. Ries and M. Huzmezan, "Adequacy of the Traditional Pharmacodynamic Approach for Modeling Intravenous Anesthetics using EEG-Based Quantifiers of Cortical Activity," *Abstracts of the 1st World Congress of Total Intravenous Anaesthesia - TCI*, Venice, Italy, September 2007.
- [24] S. Bibian, T. Zikov, D.M. Voltz, D.M. Voltz and A. Jaromczyk, "Influence of Incorrect Electrode Placement on Depth-of-Anesthesia Cortical Monitors," *Abstracts of the New York State Society of Anesthesiologists, 60th Annual Post Graduate Assembly*, December 2006.
- [25] T. Zikov, D.M. Voltz, A.M. Jaromczyk and S. Bibian, "Potential of Cortical Depth-of-Anesthesia Monitors for Cerebral Injury Screening in Cardiac Surgery," *Anesthesiology*, 105:A433, October 2006.
- [26] T. Zikov, S. Bibian, C.R. Ries, A.M. Jaromczyk and D.M. Voltz, "Performance of BIS and WAV_{CNS} to Predict Loss of Consciousness during Routine Propofol Induction," *Anesthesiology*, 105:A1030, October 2006.
- [27] S. Bibian, T. Zikov, C.R. Ries, D.M. Voltz and A.M. Jaromczyk, "Intra-Patient Reproducibility of the BIS and NeuroSENSE Monitors during Routine Propofol Induction," *Anesthesiology*, 105:A1041, October 2006.
- [28] S. Bibian, C.R. Ries, G.A. Dumont, M. Huzmezan and T. Zikov, "Pharmacokinetic Delay during Propofol Induction and Monitor Dynamics: Effect on the K₀ Calculation," *Anesthesiology*, 105:A840, October 2006.
- [29] S. Bibian, C.R. Ries, G.A. Dumont, M. Huzmezan and T. Zikov, "Age Dependency of Propofol Median Effective Concentration (EC₅₀)," *Anesthesiology*, 105:A842, October 2006.
- [30] D.M. Voltz, S. Bibian, M. Johns, C.R. Ries and A.M. Jaromczyk, "Potential Avoidance of Intra-Operative Awareness: A Case Report Using a Novel Consciousness Monitor," *Abstracts of the New York State Society of Anesthesiologists, 59th Annual Post Graduate Assembly*, December 2005.
- [31] S. Bibian, T. Zikov, C.R. Ries, D.M. Voltz, G.A. Dumont and M. Huzmezan, "Intra- and Inter-Patient Variability of Processed Electroencephalography during Thiopental Induction for ECT," *Abstracts of the New York State Society of Anesthesiologists, 58th Annual Post Graduate Assembly*, December 2004.
- [32] S. Bibian, T. Zikov, C.R. Ries, G.A. Dumont and M. Huzmezan, "The Wavelet-based Anesthetic Value (WAV): A Novel Alternative to the Bispectral Index (BIS)," *Anesthesiology*, 101:A342, October 2004.
- [33] K.K. Lundqvist, S. Bibian, C.R. Ries, P.Y.H. Yu and G.A. Dumont, "Can the Wavelet-based Anesthetic Value (WAV) Predict Airway Motor Response to LMA Insertion?," *Anesthesiology*, 101:A606, October 2004.