

Electrical dipoles, extracellular signals, and surface measurements: an example

Angela Antoniu

Canada

e-mail: avasilut@gmail.com

Abstract— Cerebrum ionic currents generated by biochemical sources at the cellular level propagate through surrounding tissue and produce measurable signals. The biochemistry of these sources, their electrical equivalent, particularities of cortical sources, and their effect are discussed and illustrated. Cornea-retinal artifacts, generally prominent in surface measurements, are also explained and integrated in the results. Both a simulated example and an example based on real measurements are shown and discussed. The simulation allows for illustration of the potential distribution both within the medium and at the surface. While a measurement is simulated, a real surface measurement is decomposed to determine the current source generators and their parameters.