

Abstract

The models considered in this study are those of Spach et al., [1], and Clark and Plonsey [6], [7]. Both assume circular cylindrical geometry for the isolated Purkinje strand and input information to the models consists mainly of the recorded transmembrane action potential, the ratio of conductivities of the intra- and extracellular media, the conduction velocity of the action potential, and the radius of the strand. In general the extracellular potentials computed using both methods agree with measured potential data and with each other. However, the Clark-Plonsey method provides a more accurate prediction of both the peak-to-peak magnitude and the separation between peaks of the bipolar extracellular potential waveform, particularly at field points close to the strand.

Citation

T. L. Harman et al, "A Comparison of Two Methods of Determining the Extracellular Potential Field of an Isolated Purkinje Strand in a Volume Conductor," IEEE Transactions, Biomedical Engineering, Vol. BME 22, pp.174 183, May 1975.