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Analytical solutions to a multicylinder somatic shunt cable model for passive neurones with spines. (English) [Zbl 0836.92005](#)

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Summary: A multicylinder somatic shunt model for spiny, passive neurones is considered. The spines are modelled as a continuum [after *S. M. Baer* and *J. Rinzel*, *J. Neurophysiol.* 65, 874-890 (1991)], coupled through the spread of dendritic voltage. A general solution is developed and a relationship governing the contribution of dendrites, soma, and spines to the voltage response is derived.

MSC:

92C20 Neural biology

78A70 Biological applications of optics and electromagnetic theory

92C05 Biophysics

Cited in 1 Document

Keywords:

voltage transients; multicylinder somatic shunt model; spiny passive neurones; general solution; dendrites; soma; spines