Membrane Potential Imaging in the Nervous System: Methods and Applications
describes optical techniques to monitor neuronal membrane potential signals. The
text upon which voltage-imaging technique is based was generated over sev-
eral decades and the aim of this book is to provide a single comprehensive source of
information on different types of voltage-imaging techniques, including overviews,
methodological details, examples of experimental measurements, and future devel-
lopments. The book is structured in five sections, each containing several chapters
written by experts and major contributors to particular topics. The volume starts
with a historical perspective and fundamental principles of membrane potential im-
aging and continues to cover the measurement of membrane potential signals from
dendrites and axons of individual neurons, measurements of the activity of many
neurons with single cell resolution, monitoring of population signals from the nerv-
ous system, and concludes with the overview of new approaches to voltage-imaging.
Membrane Potential Imaging in the Nervous System is targeted at all scientists inter-
ested in this mature but also rapidly expanding imaging approach.

Marco Canepari (b. Milan 1970) is a first class INSERM researcher (CR1) working at
the Grenoble Institute of Neuroscience. He graduated in physics at the University
of Genoa and received his PhD in biophysics from the International School for Ad-
vanced Studies in Trieste. He worked at the National Institute for Medical Research
in London, at Yale University and at the University of Basel. Marco is expert on sev-
eral optical techniques applied to neurophysiology. Marco and Dejan collaborated
for a number of years using voltage-imaging and calcium imaging approaches to
study mechanisms underlying synaptic plasticity.

Dejan Zecevic (b. Belgrade 1948) is a Research Scientist at the Department of Cellular
and Molecular Physiology, Yale University School of Medicine. He received the PhD
in Biophysics from The University of Belgrade, Serbia and was trained in the labora-
tory of Dr Lawrence Cohen who initiated the field of voltage-sensitive dye record-
ing. Dejan is the pioneer of intracellular voltage-sensitive dye imaging technique, a
unique and a cutting edge technology for monitoring the membrane potential fluct-
uation in dendritic spines and fine branches.