

PROGRESS IN BIOMEDICAL OPTICS AND IMAGING

Vol. 14 No. 45

Bio-MEMS and Medical Microdevices

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Editors

25–26 April 2013
Grenoble, France

Sponsored and Published by
SPIE

Volume 8765

Proceedings of SPIE, 1605-7422, V. 8765

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Bio-MEMS and Medical Microdevices, edited by Angeliki Tserepi, Manuel Delgado-Restituto, Eleni Makarona
Proc. of SPIE Vol. 8765, 876501 · © 2013 SPIE · CCC code: 1605-7422/13/\$18 · doi: 10.1117/12.2031868

Proc. of SPIE Vol. 8765 876501-1

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

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Author(s), "Title of Paper," in *Bio-MEMS and Medical Microdevices*, edited by Angeliki Tserapi, Manuel Delgado-Restituto, Eleni Makarona, Proceedings of SPIE Vol. 8765 (SPIE, Bellingham, WA, 2013) Article CID Number.

ISSN: 1605-7422

ISBN: 9780819495624

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

SPIE.org

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Printed in the United States of America.

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Introduction

Medicine and biology are among the most promising, but at the same time most challenging, fields of application for nanoelectronics and microsystem technologies. With this notion in mind, this year's conference, entitled BioMEMS and Medical Microdevices, has reshaped its profile and enriched its program to attract scientists from various interdependent disciplines, the merging of which is necessary for the development of the future biomedical devices. The conference recognizing that synergy among applied physics, engineering, biochemistry, medicine and neuroscience is the key behind all aspects of the next generation of biomedical devices, as well as exploiting the latest trends in biosensors, microfluidics, bio-inspired sensory processing, neural and cognition systems, biomimetics, and smart materials is a prerequisite in order to achieve breakthroughs in medical applications, aimed at bringing together experts from different disciplines, linked by the strong motivation of contributing to shaping of the new millennium's biomedical devices.

The current BioMEMS and Medical Microdevices volume includes selected papers presented at the SPIE Microtechnologies BioMEMS and Medical Microdevices conference held in Grenoble, France, on April 25-26, 2013. The sessions of the conference covered a wide range of topics, from sensors' development and BioMEMS technologies to neural-electrical interfacing and instrument development. The papers in this collection can be grouped into four main topics: Biosensors (one session), BioMEMS technologies (two sessions), Microfluidics and Lab-on-a-chip (one session), and Neural and Cellular Interfaces (two sessions).

We would like to thank the BioMEMS and Medical Microdevices Program Committee members for reviewing the submitted manuscripts in an admittedly short time-frame. Our thanks also go to the authors of the contributing papers for diligently preparing and revising the manuscripts. Last but not least, special thanks have to go to the SPIE team for their continuous support not only during the manuscript review and the preparation of this volume, but also for putting together a successful conference.

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