PROGRESS IN BIOMEDICAL OPTICS AND IMAGING
Vol. 18 No. 30

Energy-based Treatment of Tissue and Assessment IX

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Editor

29–30 January 2017
San Francisco, California, United States

Sponsored and Published by
SPIE

Volume 10066

Proceedings of SPIE, 1605-7422, V. 10066

Energy-based Treatment of Tissue and Assessment IX, edited by Thomas P. Ryan, Proc. of SPIE
Vol. 10066, 1006601 · © 2017 SPIE · CCC code: 1605-7422/17/$18 · doi: 10.1117/12.2276809

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Please use the following format to cite material from these proceedings:
Author(s), "Title of Paper," in *Energy-based Treatment of Tissue and Assessment IX*, edited by Thomas P. Ryan, Proceedings of SPIE Vol. 10066 (SPIE, Bellingham, WA, 2017) Seven-digit Article CID Number.

ISSN: 1605-7422
ISSN: 2410-9045 (electronic)

ISBN: 9781510605732
ISBN: 9781510605749 (electronic)

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

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.

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Contents

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

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Introduction

Welcome to the proceedings for the *Energy-Based Treatment of Tissue and Assessment IX*. This is the 19th year the conference has been included at Photonics West. Our first session in 1998 was entitled: *Surgical Applications of Energy*.

This year featured a wide variety of papers covering energy-based devices and techniques in medicine. Thirty-four papers were presented, and the publications associated with those talks comprise another comprehensive SPIE proceedings this year. We had a number of cutting-edge papers covering a range of topics: nanoparticles and the effects on immunology and cancer; thermal accelerant and theranostic platforms (both are novel for this conference); nanosecond pulsed electric fields; plasma medicine; low level energy treatment with ultrasound or light; and surgical tools for sterilization, laser scalpels, and laparoscopic dissection. Thermal therapy included microwave, ultrasound, and innovative imaging for assessment. It also included surgical trainers that may have broad applications in training clinicians before using thermal treatments in many anatomical sites. Surgical vessel sealing assessment and architecture was also presented. Last, but not least, new laser technology for vision correction was presented, which could result in significant commercial development in the future. Throughout the years, we have tracked the evolution of treatment technologies, aided by image guidance, and driven by evidence-based medicine. I hope that these proceedings, as in the past years, provide a viable and contemporary resource that will stimulate further ideas and applications of energy-based tissue treatment and assessment technologies.

Thomas P. Ryan