

INTRODUCTION

SPECIAL ISSUE IN HONOR OF STEVEN L. JACQUES FOR HIS 60th BIRTHDAY

Steven L. Jacques received a B.S. degree in Biology from M.I.T., and an M.S. degree in Electrical Engineering and Computer Science as well as a Ph.D. degree in Biophysics and Medical Physics from the University of California, Berkeley (1984). For his doctoral research, he used dielectric microwave measurements to explore the *in vivo* distribution of water in the stratum corneum of human skin.

His postdoctoral work, performed in the Wellman Center for Photomedicine at Massachusetts General Hospital, culminated in his appointment as Lecturer in Dermatology/Bioengineering, Harvard Medical School. He studied laser effects in skin, both experimentally and theoretically. His team developed the use of Monte Carlo computer simulations to study photon transport in biological tissues, now a widely adopted practice in the field of biophotonics.

In 1988, he joined the University of Texas MD Anderson Cancer Center as Assistant Professor of Urology/Biophysics and established a laboratory developing novel laser and optical methods for medicine, later achieving a tenured position as Associate Professor. He developed a hand-held spectrometer and accompanying analysis software to noninvasively measure hyperbilirubinemia in newborns. Patented, licensed, and FDA-approved to replace heel stick tests, this device is now a vital part of neonatal care. As of 2009, over 20 million newborns have benefited from testing with the device.

In 1996, he moved to Oregon and joined the Oregon Health and Science University, where he now serves as Professor of Dermatology and Biomedical Engineering. His work continues to center on developing novel uses of optical technologies for both therapy and diagnosis. Currently, he has invented a hand-held polarized light camera to visualize skin cancer margins and guide surgical excision, now in clinical trials. He has developed *in vivo* sub-nm measurements of vibration of the cochlear membrane in the inner ear of animal models. He is developing novel microscopes that are sensitive to the ultrastructure of cells and tissues.

Steve, as a pioneer in the field of biomedical optics, has been highly prolific. He has authored over 100 papers in peer-reviewed journals in addition to inventing one of the most widely used devices in biomedical optics. He has trained numerous researchers in our field. Some of them — including Jessica C. Ramella-Roman, Kunio Awazu, Andreas Hiescher, and myself — along with friends — including Stephen Boppart, Britton Chance, Shoko Nioka, Sergio Fantini, Wei Chen, Ricky Wang, and Yuan-Di Zhao — graciously contributed to this special section celebrating Steve's 60th birthday. Others such as Beop-Min Kim and Alexander Oraevsky plan to attend the scientific session honoring Steve, to be held in the Britton Chance Center for Biomedical Photonics, Huazhong University of Science and Technology, Wuhan, China. Let us all wish Steve the happiest 60th birthday!

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