BIOGRAPHICAL SKETCH

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NAME: Scott A Prahl

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POSITION TITLE: Professor of Electrical Engineering & Renewable Energy at Oregon Institute of Technology.

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
Caltech, Pasadena, CA	BS	05/1982	Applied Physics
University of Texas, Austin, TX	PhD	07/1988	Biomedical Engineering
Academic Medical Center, Amsterdam, Netherlands	Postdoc	08/1989	Biomedical Optics
Wellman Center, Harvard Medical School, Boston MA	Postdoc	08/1991	Biomedical Optics

A. Personal Statement

As a biomedical engineer, my work has focused on research and development in medical lasers and optics. I have contributed to over 75 refereed papers and filed several patents for medical technologies. Notably, I have developed a groundbreaking method for accurately locating and assessing breast tumors, utilizing advanced laser technology and optical imaging techniques. Additionally, my expertise extends to photoacoustic probes for port wine stain depth determination and optimizing dye concentrations for laser-assisted vascular anastomosis. As an educator and active contributor to professional organizations, I continuously strive to push the boundaries of knowledge and develop impactful solutions for the biomedical field.

B. Positions and Honors

2020 - Present	Co-founder and Chief Technical Officer, Unfold Therapeutics, Portland
2023 - Present	Sr. Research Scientist, OHSU, Portland
2017 - Present	Professor, Electrical Engineering & Renewable Energy, OIT, Portland
2020 - 2023	Chair of Electrical Engineering & Renewable Energy, OIT, Portland
2012 - 2017	Associate Professor, Electrical Engineering & Renewable Energy, OIT, Portland
2011 - 2020	Visiting Professor, Electrical & Computer Engineering, PSU, Portland
2006 - 2013	Research Assistant Professor, Biomedical Engineering, OHSU, Portland
1993 - 2007	Research Assistant Professor, Dermatology, OHSU, Portland
1993- 2011	Senior Research Scientist, Oregon Medical Laser Center, Portland
1993 - 2006	Assistant Professor, Oregon Graduate Institute, Portland
1991 - 1993	Instructor, Harvard Medical School, Boston

2023	Technical Evaluation Panel-5 SBIR/STTR	NIH/NCI
2012 - Present	Advisory Board Member	Op-TEC
1995 – 2020	Physics Chairman	Oregon Academy of Science
2009 – 2017	External Advisory Board	Beckman Laser Institute
2009 – 2010	BISH (ad hoc)	NSF

C. Contributions to Science

1. My graduate studies and subsequent research work was directed toward modeling light transport through tissue. Accurate tissue parameters for these light propagation models were scarce, so I worked on several methods for measuring the intrinsic scattering and absorption properties of tissue. This work is supported by open source software that I have posted and maintained since the mid 1990's. Consequently, many of these techniques are commonly used in the tissue optics community.

    a. S. L. Jacques and S. A. Prahl. Modeling optical and thermal distributions in tissue during laser irradiation. Lasers Surg. Med., 6:494–503, 1987.
    b. S. A. Prahl, I. A. Vitkin, U. Bruggemann, B. C. Wilson, and R. R. Anderson. Determination of optical properties of turbid media using pulsed photothermal radiometry. Phys. Med. Biol., 37:1203–1217, 1992.
    c. S. A. Prahl, M. J. C. van Gemert, and A. J. Welch. Determining the optical properties of turbid media by using the adding-doubling method. Appl. Opt., 32:559–568, 1993.
    d. S. A. Carp, S. A. Prahl, and V. Venugopalan. Radiative transport in the δ-P1 approximation: Accuracy of fluence rate and optical penetration depth predictions in turbid semi-infinite media. Journal of Biomedical Optics, 9:632–647, 2004.
    e. P. R. Bargo, S. A. Prahl, T. T. Goodell, R. A. Sleven, G. Koval, G. Blair, and S. L. Jacques. In vivo determination of optical properties of normal and tumor tissue with white light reflectance and an empirical light transport model during endoscopy. J. Biomedical Optics, 10:034018–1– 034018–15, 2005.
    f. Optics software

2. Since one of the major therapeutic uses of lasers is through light absorption and heating. I worked on various therapies that used light as a heating mechanism: photoacoustic drug delivery, laser thrombolysis, and laser welding of tissues.

    a. H. Shangguan, L. W. Casperson, A. Shearin, K. W. Gregory, and S. A. Prahl. Drug delivery with microsecond laser pulses into gelatin. Appl. Opt., 35:3347–3357, 1996.
    b. J. A. Viator and S. A. Prahl. Laser thrombolysis using long pulse frequency-doubled Nd:YAG lasers. Lasers in Surgery and Medicine, 25:379–388, 1999.
    c. R. McCargar, H. Xie, K. Price, and S. A. Prahl. In vitro mechanical assessments of laser-welded vascular anastomoses using water as the chromophore and dissolvable extruded albumin stents. Lasers in Surgery and Medicine, 44:330–338, 2012.

3. For a long stretch of my career, I developed new devices that used light for diagnostics and treatment. My first probes were for measuring the thermal properties of tissue. Later work was on photoacoustic probes to localize subsurface heating, devices that relied on light polarization to detect changes in the organization of collagen, and probe to help surgeons remove non-palpable breast tumors.

    a. P. A. Patel, J. W. Valvano, J. A. Pearce, S. A. Prahl, and C. R. Denham. A self-heated thermistor technique to measure effective thermal properties from the tissue surface. J. Biomechanical Engineering, 109:330–335, 1987.
    b. J. A. Viator, S. L. Jacques, and S. A. Prahl. Depth profiling of absorbing soft materials using photoacoustic methods. IEEE Journal of Selected Topics in Quantum Electronics, 5:989–996, 1999.
    c. P. R. Bargo, S. A. Prahl, and S. L. Jacques. Optical properties effects upon the collection efficiency of optical fibers in different probe configurations. IEEE J. Selected Topics Quantum Electron., 9:314–321, 2003.
    d. J. C. Ramella-Roman, A. Nayak, and S. A. Prahl. A spectroscopic sensitive polarimeter for biomedical applications. J. of Biomedical Optics, 16:047001, 2011.

e. A. Dayton, L. Soot, R. Wolf, C. Gougoutas-Fox, and S. A. Prahl. Light guided lumpectomy: Device. J. Biomed. Opt., 15(6):061706, 2010.

Complete List of Published Work in MyBibliography:
https://www.ncbi.nlm.nih.gov/myncbi/scott.prahl.1/bibliography/public/