

National Radio Science Meeting

◆ January 10-14, 2023

Women in Radio Science Plenary Talk, January 12, 2023

Radio Science Meets Smart Medicine and Smart Agriculture

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Abstract: Innovations that leverage the interactions of electromagnetic waves with human and plant tissue are at the heart of an impressive array of both diagnostic and therapeutic applications in medicine, and short-range remote sensing applications in agriculture. In this Women in Radio Science Plenary Session, we will explore recent advances in microwave technologies, ranging from microwave theranostics for image-guide thermal ablation of tumors to backscatter-based microwave sensing of cranberry crop yield, that have the potential to transform smart medicine and smart agriculture of the future.



Biography: Susan C. Hagness received the B.S. and Ph.D. degrees in electrical engineering from Northwestern University in 1993 and 1998, respectively. She is currently the Philip D. Reed Professor of the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison, where she has served as Department Chair since 2018. She previously served as the College of Engineering Associate Dean for Research (2014-2017) and has held a variety of professional society and advisory board appointments and leadership roles within the IEEE, the U.S. National Committee of URSI, the ASEE Engineering Research Council, and ECEDHA. She has co-authored more than 100 journal papers, eight book chapters,

and two editions (with Allen Taflove) of *Computational Electrodynamics: The Finite-Difference Time-Domain Method* (Artech House, 2000 and 2005).

She has received numerous recognitions for her holistic approach to teaching and mentoring and for her research in computational and experimental applied electromagnetics, which currently emphasizes technologies for smart medicine and smart agriculture. Highlights include the Presidential Early Career Award for Scientists and Engineers (2000), the IEEE Engineering in Medicine and Biology Society Early Career Achievement Award (2004), the URSI Issac Koga

Gold Medal (2005), the IEEE Trans. Biomedical Engineering Outstanding Paper Award (2007), the IEEE Education Society Van Valkenburg Early Career Teaching Award (2007), the Physics in Medicine and Biology Citations Prize (2011), the UW-Madison Women Faculty Mentoring Program Slesinger Award for Excellence in Mentoring (2017), and College of Engineering awards for excellence in teaching (2014), research (2018), and equity and diversity efforts (2021). She is a Fellow of the IEEE (2009), AAAS (2021), and AIMBE (2022).