Peter J. Basser, Ph.D. presented the 2017 Victor M. Haughton, M.D. Honorary Lecture During ASFNR 11th Annual Meeting

Peter J. Basser, Ph.D., from the National Institutes of Health in Bethesda, Maryland presented the 2017 Victor M. Haughton Honorary Lecture on October 10, 2017 during the ASFNR 11th Annual Meeting at the Nines Hotel in Portland, Oregon, October 9-11, 2017. The ASFNR Victor M. Haughton, M.D. Honorary Lecture is presented annually by an internationally recognized leading research scientist whose work has made significant contributions to the field of advanced neuroimaging and neuroradiology.

Dr. Basser studied at Harvard College earning a Bachelors Degree in Engineering Sciences, followed by a Masters and Ph.D. degree in Engineering Mechanics at Harvard University, where he studied fluid and continuum mechanics as well as applied mathematics. Applying that conceptual framework to the study of the structure and function of the central nervous system he produced a number of remarkable innovations in neuroimaging while he completed his post-doctoral training in the field of biomedical engineering at the National Institutes of Health. Dr. Basser chose to focus on water dynamics and transport in tissues and cells, from which he invented non-invasive MR methodologies to probe both tissue microstructure and function, most notably using diffusion tensor MR imaging. As the scientist-inventor-researcher who pioneered this technique, he has had a profound and lasting influence on the study of neuroscience over the past two and a half decades. The techniques of diffusion MR imaging have laid the groundwork for thousands of other research and clinical scientists around the world who use DTI to study and uncover the secrets of central nervous system function and development. DTI is now a standard research tool to study neurological disease of the brain and spinal cord. Two of the iconic papers on diffusion tensor imaging in which Peter J. Basser is first author, "MR Diffusion Tensor Spectroscopy and Imaging" from 1994 and "Microstructural and Physiologic Features of Tissues Elucidated by Quantitative Diffusion Tensor MRI" from 1996 have been cited over 4500 and 3800 times in the literature respectively; and, a 2000 paper, "In vivo fiber tractography using DT-MRI data" was given special recognition by the International Society of Magnetic Resonance in Medicine (ISM,RM) in 2014 as one of the 30 most important papers in the field of MRI in the past 30 years. His work has been cited over 37,000 times with an H-index of 64 and i10 index of 165 on Google Scholar.

As a research scientist, Dr. Basser has made significant contributions to other fields including diffusion tensor tractography as an inventor of streamline tractography. He also wrote the first papers explaining the mechanism of electromagnetic stimulation of myelinated and unmyelinated axons that provide the underpinning for the entire field of transcranial magnetic stimulation (TMS). He then collaborated on the first study that used TMS to treat depression. Recently, Dr. Basser has made significant advances in MR imaging of histology and microstructural imaging with the development of Composite Hindered and Restricted Model of Diffusion (CHARMED) and AxCaliber MRI, which quantitatively measures axonal diameter and axonal diameter distribution within white matter tracts, respectively.

Dr. Peter J. Basser is the Senior Investigator at the *Eunice Kennedy Shriver* National Institute for Child Health and Development (NICHD), Section Head of the Quantitative Imaging and Tissue Sciences (SQITS), and Associate Director of the Division of Imaging, Behavior, and Genomic Integrity.

Dr. Basser has received numerous awards including the coveted ISMRM *Gold Medal* in 2008 that recognizes the outstanding research contributions of luminaries to the field of MRI; and, he was named a *Fellow* of the ISMRM in 2010, which is a recognition given to scientists by their peers and members of the ISMRM for lifetime achievement in advancing the field of MRI.

The ASFNR Annual Meeting features in-depth and comprehensive updates on functional neuroimaging and advanced neuroimaging appealing to a broad range of neuroradiologists, neurologists, neurosurgeons, physicists, neuropsychiatrists and psychologists, cognitive neuroscientists, biomedical engineers, clinical and research fellows, residents, doctoral and postdoctoral students, and radiology technologists.

For more information on the ASFNR Victor M. Haughton, M.D. Honorary Lecture, or the Society in general, contact ASFNR Business Manager Ken Cammarata at kcammarata@asnr.org or 630-574-0220, ext. 226.

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