



International Commission on Radiation Units and Measurements, Inc.

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Dr. Charles Mistretta Selected to Receive 18th Gray Medal

The International Commission on Radiation Units and Measurements (ICRU) is pleased to announce that the 18th Gray Medal will be presented to Dr. Charles Mistretta on July 31, 2017 at the 59th Annual Meeting and Exhibition of the American Association of Physicists in Medicine (AAPM) in Denver, Colorado. Dr. Mistretta's talk is entitled "Historical Recollections of Developments in Angiography 1971-2017."

Dr. Mistretta received his degree in High Energy Physics from Harvard University in 1968. He has been doing research in medical imaging since 1971. His group was responsible for the development of digital subtraction angiography (DSA) which was commercially introduced in 1980.



His research has focused on time resolved angiography and has resulted in the introduction of accelerated imaging techniques. Emphasis has been placed on the development of accelerated magnetic resonance imaging (MRI) methods using sparse sampling which significantly violates the traditional Nyquist sampling theorem, the use of non-Cartesian acquisition trajectories and the application of constrained reconstruction techniques like HYPR and its derivatives.

Acceleration factors as large as 1,000 have been achieved in selected MRA applications. These techniques have recently been extended to many areas of medical imaging such as positron emission tomography (PET), photoacoustic tomography and x-ray computed tomography (CT) where dose reductions of ten have been reported by several groups for perfusion studies.

Dr. Mistretta and Dr. Charles Strother introduced 4D DSA, an x-ray technique which adds an additional dimension to traditional DSA by producing a time series of 3D image volumes at high frame rates.

Dr. Mistretta is a Fellow of the AAPM, American Institute for Medical and Biomedical Engineering (AIMBE), and International Society for Magnetic Resonance in Medicine (ISMRM). He has received the Laufman Greatbatch Prize for the development of DSA, and the J Allyn Taylor International Prize in Medicine. He is the recipient of several awards including the 2010 Technology Achievement Award by the MIT Club of Wisconsin; 2015 UW Medical School Folkert Belzer Award; 2015 Distinguished Investigator Award by The Academy of Radiology Research and the 2016 IEEE Medal for Innovations in Healthcare Technology.

Dr. Mistretta has generated 54 United States patents with 7 additional patents pending. He has mentored 37 PhD students and 26 postdoctoral associates.

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