The 12th ICRU Gray Medal to Dr. Charles E. Metz

The International Commission on Radiation Units and Measurements is pleased to announce that the Commission’s L. H. Gray Medal was presented to Dr. Charles E. Metz at the 14th International Conference of Medical Physics held in Nuremberg, Germany, September 14-17, 2005. As the twelfth recipient of the Gray Medal, Dr. Metz joins an illustrious group of predecessors honored for their major contributions to radiological science.

Charles Metz was born in Bay Shore, New York and attended Bowdoin College, where he received a Bachelor of Arts degree in Physics. He subsequently earned M.S. and Ph.D. degrees in Radiological Physics at the University of Pennsylvania. Dr. Metz began his professional career at The University of Chicago as an Instructor in the Department of Radiology and is now Professor of Radiology and Medical Physics there. He has made numerous contributions to the field of medical imaging science, including more than 200 published papers. In particular, Dr. Metz is the principal author of a large number of landmark papers on receiver operating characteristics (ROC) methodology for medical image evaluation. Dr. Metz has advanced the field by developing and providing without charge an extensive package of computer software for ROC analysis that has been obtained by more than 9000 registered users worldwide. Moreover, his advice as a consultant is widely sought by imaging scientists, medical device companies, professional societies and government agencies.

Dr. Metz’s work has covered a gamut of problems that range from image detection, processing and formation through display to clinical utilization. His Ph.D. thesis has become a standard reference for investigators interested in Fourier and statistical analyses of all images derived from Poisson-distributed radiation. The so-called Metz filter, also a product of that dissertation research, is widely used in the post-processing of nuclear medicine images for simultaneous image resolution enhancement and noise suppression. His pioneering work on inverting the exponential Radon transform for analytical attenuation correction to improve the quantitative accuracy of single-photon computed tomography (SPECT) is highly regarded and widely cited. In addition, Dr. Metz has contributed to the theoretical analysis of collimator designs in scintigraphy, image reconstruction in biplane angiography, the application of ROC analysis and other image-evaluation methods to conventional and digital x-ray images, and more recently to a large scale evaluation of the usefulness of computer-aided diagnosis in mammography, chest radiography and CT images. The scope of this work demonstrates the exceptional breadth and depth of Dr. Metz’s professional career.

Dr. Metz directed the Graduate Programs in Medical Physics at the University of Chicago from 1979 to 1985, and many students have benefited greatly from his advice as a dissertation advisor. Dr. Metz is considered by many to be one of the best writers...
in the field of medical imaging science, and in particular to be a master in presenting and explaining complex scientific concepts in a highly succinct and easy-to-understand way. His exceptional writing skill is matched by his talents in classroom teaching and public lectures. Based on his outstanding contributions to medical imaging science, the ICRU is proud and pleased to award the twelfth L. H. Gray Medal to Dr. Metz.

Kunio Doi