

2010 Board of Trustees' Award for Outstanding Research and Creative Scholarship Recipient

Dalin Tang

Professor Dalin Tang is internationally recognized for his work in mathematical simulations of cardiovascular flow problems, having attained world-wide recognition for his work on computational fluid dynamics (CFD) for solid-fluid structures. He has produced pioneering work in applying CFD to investigate the vulnerability of large arteries to plaque rupture, to human ventricle modeling, and to surgery optimization. Professor Tang's creativity, innovation, and leadership in this field of CFD have helped to solve real-world medical problems, thus making a significant contribution to the health of humanity.



Professor Tang's scholarly record is remarkable. He has published a steady stream of peer-reviewed articles--over seventy-five refereed journal papers and book chapters--in the leading and most highly respected journals of computational biomedical engineering, and has published over ninety-five refereed conference papers and abstracts. His work is often cited by other scholars. He is the recipient of two best-paper awards from international medical associations, which speak to the quality of his work and the recognition it has earned within his community. He is well respected within his field, having been invited frequently as a session chair and organizer of professional meetings, and he is an associate editor for two prestigious biomedical journals. Additionally, he is the holder of three patents. In 2004, Professor Tang was awarded the first NIH RO1 grant obtained by WPI--which not only provides important resources for his scientific work but also contributes to the recognition of WPI as an institution of high caliber.

An American colleague states that Dalin Tang is engaged in "an important and challenging research program," demonstrating according to another colleague "a significant degree of creativity and resourcefulness in tackling very complex problems." A major aspect of Tang's work is that he "insists on a level of realism which makes his results much more relevant" and "does not oversimplify the problem." Another colleague states that "an important feature of Tang's research program is that it is being conducted with a corresponding experimental or clinical group" which is "an impressive achievement." According to his peers, Dalin Tang

"has successfully validated his numerical predictions to a level that may be considered as one of the best in the field." Tang is pioneering a quantitative understanding of plaque rupture that has led him to "a position of leadership in modeling the mechanics of diseased arteries." The importance of Tang's work is evidenced by his invitation to present to United States Congress representatives on Capitol Hill at the annual Coalition for National Science Funding. The potential for Tang's work to make an impact on the real world is further supported by his receiving the WPI Kalenian Award in 2008.

Tang is, according to several professional colleagues, "a genuine scholar" and a "devoted teacher," "a real pioneer as a teacher," and a "friendly, quiet, and committed faculty member."

In recognition of his significant contributions to the field of Computational Biomedical Engineering, specifically his development of original computational fluid dynamics methods for boundary-fluid interactions, exemplified by his modeling of blood flow and arterial wall interactions in stenosis, and his computational studies of right ventricular flow, it is with great pride that Professor Dalin Tang is named the recipient of the 2010 Board of Trustees Award for Outstanding Research and Creative Scholarship.