

Raimondo Betti, Ph.D., M.ASCE

Professor, Department of Civil Engineering & Engineering Mechanics, Columbia University

VISION STATEMENT

My vision for EMI perfectly aligns with the description of EMI that can be found on the ASCE website: “a premier interdisciplinary organization of engineering mechanics that promotes research and the application of scientific and mathematical principles to address existing and emerging engineering and societal issues”. This description contains all the components that I consider fundamental to the mission of EMI.

First of all, EMI must continue to be recognized as the pivotal center of engineering mechanics, supporting and disseminating research in all branches of mechanics through conferences, technical committees, webinars, the Journal of Engineering Mechanics, etc. I was an Associate Editor for JEM for three years (2003-05) and have served on various technical committees (Chair and Vice Chair of the Dynamics Committee of EMD (2003-2008) and currently a member of the Dynamics and Structural Health Monitoring committees) and I have had many opportunities to experience first-hand the importance of having such a forum that is representative of the engineering mechanics community. It is through these venues that ideas are exchanged, theories are challenged and collaborations are born; these are indicators of a vibrant research community and should be maintained.

A fundamental role for EMI as the leading institution in engineering mechanics is to help mechanics break new ground in more traditional areas of civil and mechanical engineering, which are usually more reluctant to change. I strongly believe that innovation is essential to ride the wave of the rapidly changing industry that civil engineering will become in the near future and, in this context, EMI should play a leading role. In the last few years, all branches of engineering mechanics have been experiencing drastic changes due to the impact of Artificial Intelligence in our society. Machine Learning algorithms will revolutionize the way we look at mechanics problems and research will now become data-centered. The horizon now has basically no limits, i.e. consider the opportunities in Smart Cities, but this will require thinking out of the box. In this evolving scenario, EMI has to serve as the catalyst of mechanics research. Having served on the Organizing Committee for the EMI Annual Conferences in 2002 and 2021 and organized many technical sessions over the past 30 years, I believe that, through its Annual Conferences and journal publications, EMI can help shape the research directions for the future and have a greater impact on societal issues.

It is important that EMI maintains and encourages interdisciplinary research. It is my strong belief and lived experience that the best ideas in research stem when people from different disciplines work together. This is becoming more and more important as our society moves towards a data-controlled future.

SHORT BIO

Professor Raimondo Betti received his Laurea degree, magna cum laude, in Civil Engineering from the University of Rome “La Sapienza” in 1985 and his Master of Science (1988) and PhD (1991) from the University of Southern California. In 1991, Dr. Betti joined the Department of Civil Engineering and

Engineering Mechanics at Columbia University as an Assistant Professor and has been there ever since, having been promoted to Associate Professor (1998) and to Full Professor (2002). From 2010 to 2013, he served as the Chair of the CEEM department. As a professor at Columbia, he received in 1995 the National Science Foundation Young Investigator Award and the 1997 the Foreign Specialist Award from the Public Work Research Institute in Japan. For his teaching at Columbia, Dr. Betti received the 1996 Distinguished Faculty Teaching Award from the School of Engineering and Applied Science and the 2000 Great Teacher Award from Columbia University. In 2017, Dr. Betti was awarded the Aftab Mufti Medal by the International Society for Structural Health Monitoring of Intelligent Infrastructure for his work on structural health monitoring of suspension bridges. Dr. Betti's research interests are in the structural health monitoring and damage detection in buildings and bridges using vibration measurements and in the deterioration mechanisms and assessment of the remaining strength of main cables of suspension bridges. His research work (about 100 journal papers and more than 120 conference proceedings/presentations) has been published in some of the best journals in the field and presented at national and international conferences.

Dr. Betti has been an active member of ASCE Engineering Mechanics Division/Institute for over thirty years. From 2003 to 2008, he served as Chair and Vice-Chair of the Dynamics Committee of EMD, while currently he is an active member of the Dynamics and of the Structural Health Monitoring Committees. He was a member of the Organizing Committee of the ASCE EMI Annual conferences in 2002 and in 2021 and organized technical sessions at various EMI Annual conferences. He has also served as Associate Editor for the ASCE Journal of Engineering Mechanics from 2003-2005. 90 journal papers and 120 conference papers. Dr. Betti's research interests are in the structural health monitoring and damage detection in buildings and bridges using vibration measurements and in the deterioration mechanisms and assessment of the remaining strength of main cables of suspension bridges.