From large-scale weather or environmental disaster predictions and efficient design of vehicles and power generators, to understanding how bacteria propel themselves and how nutrients are delivered to different organs in our body at the cell level — researchers will need to find new ways of studying the complex flow of liquids, gases and plasmas that drive or characterize intricate climatic, transportation and biological systems.

In his upcoming Technology and Society Forum presentation, Joseph Katz will demonstrate how today’s latest multidimensional high-speed flow visualization techniques are helping scientists and engineers to probe flow phenomena underlying some of the most critical processes in their fields of research.

The presentation will specifically highlight several ways that cutting-edge flow visualization techniques can impact fields of discovery today, such as:

- Identification of instabilities that adversely affect the performance of aviation gas turbine compressors and methods to alleviate them.
- Breakup of oil crude slicks by ocean surface waves, the subsequent transport of subsurface and airborne oil droplets, and associated health concerns.
- In vivo measurements of blood circulation in a human heart using ultrasonic (echo) contrast imaging.

Joseph Katz is the William F. Ward Sr. Distinguished Professor of Engineering and the director and co-founder of the Center for Environmental and Applied Fluid Mechanics at JHU. He is Fellow of the American Society of Mechanical Engineers (ASME) and the American Physical Society. He has co-authored more than 350 journal and conference papers. Dr. Katz’s research extends over a wide range of fields, with a common theme involving experimental fluid mechanics, and development of advanced optical diagnostics techniques for laboratory and field applications.

NJIT welcomes attendees from the region’s professional practices and universities.

This public forum qualifies attendees for Professional Development Hours.

Sponsors: Albert Dorman Honors College; John A. Reif, Jr. Department of Civil and Environmental Engineering, Otto H. York Department of Chemical, Biological and Pharmaceutical Engineering, Department of Chemistry and Environmental Science, and Sigma Xi NJIT Chapter

For more information: Visit http://tsf.njit.edu or contact Professor Michel Boufadel, boufadel@njit.edu