

The DDDAS concept entails the ability to dynamically incorporate additional data into an executing application, and in reverse, the ability of an application to dynamically steer the measurement (instrumentation and control) components of the application system. DDDAS is a key concept for improving modeling of systems under dynamic conditions, more effective management of instrumentation systems, and is a key concept in architecting and controlling dynamic and heterogeneous resources, including, sensor networks, networks of embedded controllers, and other networked resources. DDDAS transformative advances in computational modeling of applications and in instrumentation and control systems (and in particular those that represent dynamic systems) require multidisciplinary research, and specifically need synergistic and systematic collaborations between applications domain researchers with researchers in mathematics and statistics, researchers computer sciences, and researchers involved in the design/ implementation of measurement and control systems (instruments, and instrumentation methods, and other sensors and embedded controllers). The presentation will address novel research directions and new technology capabilities in the area of multisensor data and information fusion, for adaptive and effective management of multisensor resources and multisensor data, enabled through research directions and projects funded under the AFOSR DDDAS Program.