Abstract: In this talk I will present perspectives on the Cyber Physical Systems Program at NSF. CPS is a cross-cutting program at NSF including the CISE (Computer Information Science and Engineering) and ENG (Engineering) directorates. Additionally, in recent years, the CPS program has expanded to include the participation of other federal agencies, including the U.S. Department of Homeland Security, U.S. Department of Transportation, NASA, and National Institutes of Health. The CPS program was initiated by NSF in 2009 and has continually evolved and grown. Today, the program includes more than 350 PIs and co-PIs spread across more than 35 states, and constitutes more than $250 million in federal investment in fundamental R&D.

This talk will describe research thrusts in FY 15 and a perspective on future research challenges as well as thoughts on progress we have made. I will highlight opportunities in emerging areas including Smart and Connected Communities (SCC) which is the focus of a recent and active Dear Colleague Letter (NSF 15-120). My talk will also describe current thrusts in the security of CPS as well as the emerging Internet of Things (IoT). Finally, I will also provide some insights into program development at NSF and the activities of a Program Director.

Biography: Dr. David is the Program Director leading the Cyber Physical Systems Program for the National Science Foundation.

Dr. Corman obtained a dual BS degree in System Science and Mathematics and Applied Mathematics and Computer Science from Washington University in 1977. He then obtained a dual MS degree in SSM and Mechanical Engineering from Washington University in 1978. He completed his graduate education at the University of Maryland - College Park, and obtained a PhD in Electrical Engineering in 1983 with a major in controls and minor in communications. While at Maryland, Dr. Corman also worked at the Johns Hopkins Applied Physics Laboratory in the area of estimation, detection, and control.

He worked for McDonnell Douglas / Boeing in a variety of positions. His work included a broad portfolio of DARPA and Air Force Research Laboratory research programs including Software Enabled Control, Mixed Initiative Control of Automa-teams, Threat Agent Cloud Tactical Intercept and Countermeasures, and Adaptive Vehicle Make. He was elected a Boeing Technical Fellow in 1999.

Dr. Corman joined NSF’s Computer and Information System Engineering (CISE) directorate as an IPA in March 2013 as a Senior Research Scientist with the University of Maryland’s Institute for Systems Research. He was appointed as a Research Associate Professor in the Preston M. Green Department of Electrical & Systems Engineering at Washington University in St. Louis, in March 2015.

Dr. Corman’s current research interests are in the field of Cyber Physical Systems (CPS), security for CPS, unmanned systems, manufacturing, and technologies supporting Smart and Connected Communities. Dr. Corman has approximately 30 publications and has obtained five patents.