Abstract
In recent years risk-based methods have gained popularity due to their effectiveness in supporting decision making during design and operation of large-scale engineering projects. Theses methods at theoretical and practical levels have to deal with interdisciplinary complexities of socio-technical systems. One of the greatest challenges of this technical discipline is the lack of a widely accepted and theoretically sound set of principles on which socio-technical risk models could be developed and validated. This talk presents the results of a multidisciplinary effort for developing such principles. As a realization of aforementioned modeling principles, an organizational risk framework, named Socio-Technical Risk Analysis (SoTeRiA) is developed. A hybrid socio-technical systems risk method, which combines deterministic and probabilistic modeling perspectives through integration of System Dynamics (SD), Bayesian Belief Network (BBN), Event Sequence Diagram (ESD), and Fault Tree (FT), is utilized to implement SoTeRiA in the aviation domain.

Bio
Dr. Zahra Mohaghegh earned M.Sc. and Ph.D. degrees in Reliability Engineering (with specialization in risk analysis of complex systems) from the University of Maryland (UMD) in 2007. She received her B.Sc. in Mechanical Engineering and prior to her graduate study worked as a senior Research Engineer in a Power Plant Research Institute. She is currently a Post-Doctoral Research Associate at the Center for Risk and Reliability at UMD, while teaching a graduate course in optimization at George Washington University (GWU) and a graduate course in advanced systems reliability methods at UMD. Her current research interests includes Engineered Systems Risk and Reliability Analysis, Risk-based Design, Causal Modeling of Organizational and Human Reliability (using Bayesian Belief Network and System Dynamics approach), and Bayesian Methods. Her dedication and efforts in aerospace-related research has been recognized by Zonta International Amelia Earhart Award.

1 Soteria was the goddess of safety, and of deliverance and preservation from harm in Greek mythology.