Abstract:
As recent strong earthquakes have highlighted, the integrity of key transportation components, such as bridges, tunnels and geotechnical works has a great impact on the ability of the network to restore its original functionality and to limit the overall loss incurred by the community. The latter is defined as the direct structural, damage-related, loss as well as the indirect loss associated with the prolonged traffic disruption and the wider socio-economic consequences in the affected area. The above aspects of seismically-induced loss are particularly pronounced in cases of developed societies with extended and coupled intercity infrastructure wherein the interdependency between citizens and functionality of the numerous critical highway components is extended.
Quantifying therefore, the ability of the highway network to withstand, adapt to, and rapidly recover after a disruptive event is a challenging issue of paramount importance towards holistic disaster management. Along these lines, this talk presents a comprehensive, multi-criterion framework for assessing highway network resilience to earthquakes and mitigating the time-variant loss experienced by the community after an earthquake event. In order to reflect the multi-layered nature of loss, a set of novel, qualitative, time-variant metrics is introduced, while quantitative indicators are used for cumulatively assessing the total loss incurred throughout the entire recovery period. The above probabilistic framework consists a holistic risk management tool for making informed decisions both pre- and post- a major earthquake event, thus prioritizing the pre-disruption strengthening schemes and accelerating the inspection and recovery measures, respectively.

Brief Bio:
Anastasios Sextos received a 5-year Diploma in Civil Engineering in 1997 at the Aristotle University of Thessaloniki, a Master’s Degree on Earthquake Engineering and Structural Dynamics at Imperial College London in 1998 and a PhD in Bridge Engineering from Aristotle University in 2001. He served at Aristotle University for 12 years as a Lecturer, Assistant and Associate Professor before joining the University of Bristol where he currently serves as a Reader of Earthquake Engineering. His main research interests are related to Earthquake Engineering and Structural Dynamics, Numerical Analysis of complex structures, Seismic Resilience of Systems, Structural Health Monitoring, Spatial Variability of Earthquake Ground Motion and Soil-Structure Interaction.
Anastasios Sextos has been a visiting scholar at University California Berkeley (2007) and a Fulbright research scholar at the University of Illinois at Urbana-Champaign (2012). He is a member of EERI, ASCE, EPSRC Associate Review Panel College, the Board of Directors of the Organization for Earthquake Planning in Greece, responsible for Civil Protection, and the Chair of the Hellenic Society for Earthquake Engineering. He is the PI of numerous national or bi-lateral research grants funded by the UK, Germany, Greece and China and the coordinator of European consortia funded by FP7 and H2020.

(Publication portfolio and complete profile available at: www.asextos.net)