



## Keynote by Jean Dumoulin

### Title :

Real site thermal monitoring of transport infrastructures and structures by infrared thermography

### Abstract :

Being able to perform easily noninvasive diagnostics for surveillance and monitoring of transport infrastructures and structures is a major preoccupation of many technical offices. Among all the existing electromagnetic methods, long-term thermal monitoring by uncooled infrared cameras is a promising technique due to its dissemination potential according to its low cost on the market. The talk will address the study, the development and the implementation of adapted IR measurement systems for the thermal monitoring of transport infrastructures or buildings in outdoor conditions. The survey of environmental parameters during measurements will be addressed and discussed. Some examples of experiments carried out on real large scale structures will be presented and analyzed. Finally, discussion on the interoperability of such system, models for analysis and observed limitations will be presented and completed by perspectives.

### Short Bio :

**Jean Dumoulin** received his Ph.D. in energetic systems from the National Institute of Applied Sciences (INSA) of Toulouse in 1994 specializing in disturbed aerodynamics wall heat transfer identification by infrared thermography. Following positions as associate research engineer in the former Department of Studies and Research in Mechanics and Energetic Systems at the French National Aerospace Research Institute (ONERA) and associate lecturer at INSA Toulouse, he joined the French Institute of science and technology for transport, development and networks (IFSTTAR : previously LCPC : Laboratoire Central des Ponts et Chaussées) in 1997. Since 2013, he is scientific officer at the European Geosciences Union (EGU) for the Division on Geosciences Instrumentation and Data Systems (GI), and member of the INRIA and IFSTTAR joint research team I4S (Statistical Inference for Structural Health Monitoring). His current research topics deal with thermal and optical methods and models for energy efficiency assessment and structural monitoring.