Title of Mini-Symposium:

SmartEN Marie Curie ITN - Smart Management for Sustainable Human Environment

Organizers

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Summary:

The SmartEN Marie Curie Initial training Network (ITN) is an EU funded programme which aims to train the next generation of research leaders in the field of smart proactive management of the built and natural environment by effectively developing and integrating novel wireless sensor network and digital signal processing technologies with non-destructive evaluation and proactive management for the benefit of a sustainable human environment. The SmartEN consortium comprises of 15 leading organizations (universities, research institutes and companies) and 9 distinguished scientists from around the world. The project encompasses research and training programmes for 19 Marie Curie Fellows as well as horizontal integration multi-disciplinary research projects in key application areas. The mini-symposium presents research in a number of key areas from within the scope of SmartEN ITN.

The Mini-Symposium addresses the following topics in three sessions:

1. **A Research Framework for SmartEN and Application Issues**

With the following presentations:

   1. **SmartEN – A Research Framework on Smart Management for Sustainable Human Environment**
      Toula Onoufriou* (Cyprus University of Technology/ Cyprus), Anthony G Constantinides (Imperial College/UK), Anastasis Kounoudes (Signal Generix/Cyprus)
      [*corresponding author: t.onoufriou@cut.ac.cy]

   2. **Capabilities of non-destructive testing of RC structures**
      Rosemarie Helmerich*, Ute Effner, Martin Friese, Frank Mielentz (BAM/ Germany).
      [*corresponding author: Rosemarie.Helmerich@bam.de]

   3. **Structural robustness as design principle**
      Fabio Casciati* (University of Pavia/Italy), Lucia Faravelli (University of Pavia/Italy), Sara Casciati (University of Katania/Italy).
      [*corresponding author: fabio@dipmec.unipv.it]

   4. **Optimization of Life-Cycle Preventive Maintenance Strategies using Genetic Algorithm and Bayesian Updating**
      Elia Tantele*, Toula Onoufriou (Cyprus University of Technology/Cyprus)
      [*corresponding author: elia.tantele@cut.ac.cy]

   5. **Predicting the life of reinforced concrete structures in severe marine environments**
      Robert E Melchers* (University of Newcastle/ Australia, Chun Q Li (University of Greenwich/ UK).
      [*corresponding author: rob.melchers@newcastle.edu.au]

2. **SHM and Proactive Management**

With the following presentations:

   1. **Decision making methodology based on health monitoring to optimize maintenance strategies under multiple criteria**
      André D. Orcesi (LCPC/France), Dan M. Frangopol* (Lehigh University/USA)
      [*corresponding author: dan.frangopol@lehigh.edu]
2. **Use of sensors for efficient design of seismic protection techniques for monuments**
   Christis Chrystostomou*, George Christodoulou, Renos Votsis, Nicolas Kyriakides (Cyprus University of Technology/Cyprus)
   [*corresponding author: c.chrysostomou@cut.ac.cy]

3. **Reference-free health monitoring system using chaos theory**
   Hitoshi Furuta*, Yasutoshi Nomura, Koichiro Nakatsu, Hiroshi Hattori, Yuki Teramae (Kansai University/ Japan)
   [*corresponding author: furuta@res.kutc.kansai-u.ac.jp]

4. **SHM in Integrity Management of Deterioration Prone Concrete Structures**
   M. Imran Rafiq* (University of Surrey/UK)
   [*corresponding author: M.rafiq@surrey.ac.uk]

5. **Role of monitoring in life-cycle assessment, prediction, proactive management, and optimization of deteriorating structures**
   Dan M. Frangopol*, Nader Okasha (Lehigh University/USA)
   [*corresponding author: dan.frangopol@lehigh.edu]

3. **Research and training Challenges in SmartEN and Sensors for Infrastructure**

With the following presentations:

1. **Research and Training Challenges within SmartEN Marie Curie ITN**
   Toula Onofriou*¹, Anastasis Kounoudes², Anthony G Constantinides³, Antonis Kalis⁴, Nicholas Mousoulides¹, Elia Tantele¹, Christis Chrystostomou¹.
   ¹: Cyprus University of Technology/Cyprus, ²: Signal Generix/Cyprus, ³: Imperial College London/UK, ⁴: Research and Education Laboratory in Information Technology/Greece
   [*corresponding author: t.onofriou@cut.ac.cy]

2. **Smart Wireless Sensor Technology for Continuous Health Monitoring of Structures**
   Anastasis Kounoudes (Signal Generix/Cyprus), Antonis Kalis (Research and Education Laboratory in Information Technology/Greece), Toula Onoufriou (Cyprus University of Technology/Cyprus), Anthony G Constantinides (Imperial College London/UK).
   [*corresponding author: tasos@signalgenerix.com]

3. **Data processing for information extraction in wireless sensor networks**
   Glauko Feltrin* (Swiss Federal Laboratories for Materials Testing and Research, Switzerland)
   [*corresponding author: Glauco.Feltrin@empa.ch]