

Programme  
**Digital Stakeholder' Workshop (HyTunnel-CS project)**  
(time corresponds to "Central European Time")

### Monday 4<sup>th</sup> May 2020

**9:30-10:00** Opening and FCH 2 JU presentation (A. Garcia Hombrados, FCH 2 JU)

**10:10-10:40** Introduction to HyTunnel-CS project by the coordinator (V. Molkov, Ulster University)

**10:50-11:20** The critical analysis of the state-of-the-art (D. Makarov, Ulster University)

**11:20-11:40 Comfort Break**

**Session: Effect of mitigation systems on hydrogen release and dispersion in confined spaces**

11:40-12:00 Overview of research programme on unignited releases (A. Venetsanos, NCSR)

12:05-12:25 Non-adiabatic blowdown model (S. Kashkarov, UU)

**12:30-12:50 Comfort Break**

12:55-13:15 Mechanical ventilation in underground parking (V. Shentsov, UU)

13:20-13:40 Numerical study of tunnel slope effect on hydrogen dispersion (I. Toliás, NCSR)

13:45-14:05 Experimental investigation on the efficiency of mechanical ventilation on dispersion of hydrogen release (J. Grune, Pro-Science)

14.10-14:20 Open discussion

**14:20-15:00 Lunch Break**

**Session: Thermal and pressure effects of hydrogen jet fires and structure integrity**

15:00-15:20 Overview of research programme on jet fires (F. Markert, DTU)

15:25-15:45 Fire resistance rating of composite tank in a fire (S. Kashkarov, UU)

15:50-16:10 Pressure peaking phenomenon: unignited and ignited releases (V. Shentsov, UU)

16:15-16:35 Effect of jet fire on mechanical ventilation system in underground parking (D. Cirrone, UU)

16:40-17:00 Effect of hydrogen jet fire on a tunnel structure (CFD part) (D. Cirrone, UU)

17:05-17:25 The pressure peaking phenomenon in garages: CFD model (D. Cirrone, UU)

17:30-17:50 Jet fires effects: experimental studies (D. Bouix, CEA)

17.50-18:00 Open discussion

### Tuesday 5<sup>th</sup> May 2020

**Session: Explosion prevention and mitigation (Part 1)**

9:30-9:50 Overview of research programme on explosions (M. Pursell, HSE)

9:55-10:15 Blast wave decay in a tunnel (W. Dery, UU)

10:20-10:40 Deflagration of non-uniform hydrogen-air cloud after release in tunnel (T. Jordan, KIT)

10:45-11:05 Effect of blast wave after tank rupture in a fire on a tunnel structure (V. Shentsov, UU)

**11:10-11:30 Comfort Break**

**Session: Explosion prevention and mitigation (Part 2)**

11:30-11:50 Pre-tests for assessment of high-pressure tank rupture in a tunnel (D. Bouix, CEA)

11:55-12:15 Performance of TPRD-less tank in a fire (S. Kashkarov, UU)

12:20-12:30 Open discussion

**Session: First responders' intervention**

12:30-12:50 Basics and principles of fire intervention (M. Van de Veire, SPFI)

12:55-13:15 Framework conditions for firefighters' education and training (C. Brauner, IFA)

**Session: Quantitative risk assessment of FCEV in tunnel**

13:20-13:40 Quantitative risk assessment model (S. Kashkarov, UU)

13:45-14:05 Modelling hydrogen vehicles road tunnel accidents using BBN Bayesian (F. Markert, DTU)

14.10-14:20 Open discussion

**14:20-15:00 Lunch Break**

**Session: Stakeholders Presentations**

15:00-15:30 Tees Valley Hydrogen Trains (M. Lipscomb, Northern Trains Limited)

15:30-16:00 Breeze and iLint trains (S. Ring, Alstom)

16:00-16:10 Open discussion

**16:10-16:20 Concluding remarks by Professor Paola Russo**