



2nd International Conference on Structural Integrity (ICSI 2017)

Thematic Symposium Announcement:

ESIS TC10- Symposium on Environmentally Assisted Cracking & Hydrogen Embrittlement

Organized by:

Professor Jesús Toribio¹

Professor Hryhoriy Nykyforchyn²

¹ Fracture & Structural Integrity Research Group (FSIRG), University of Salamanca, Spain

² Karpenko Physico-Mechanical Institute of the NASU, Lviv, Ukraine

Environmentally assisted cracking and hydrogen embrittlement are phenomena of material cracking and degradation present in many engineering materials working under aggressive environments, thus promoting fracture and compromising their structural integrity. In the specific matter of hydrogen embrittlement, many names have been used, such as hydrogen degradation (Panasyuk, Andreikiv) or the dual terms coined by Birnbaum and Gerberich: hydrogen enhanced localized plasticity (HELP) and hydrogen enhanced decohesion (HEDE).

The topics of the Special Symposium include, but are not limited to:

Fatigue and fracture under aggressive environments.

Environmentally assisted cracking (EAC) and environmentally assisted fracture (EAF).

Stress corrosion cracking (SCC) and corrosion-fatigue (CF).

Corrosion-deformation interactions. Role of stress-strain fields.

Hydrogen embrittlement (HE), hydrogen degradation (HD), hydrogen damage (HD).

Hydrogen enhanced localized plasticity (HELP) and hydrogen enhanced decohesion (HEDE).

Hydrogen enhanced delamination or debonding (HEDE).

Hydrogen assisted fracture (HAF) and hydrogen assisted cracking (HAC).

Hydrogen transport by diffusion and dislocational dragging.

Hydrogenation *versus* cracking. Coupled effects. Effect of history.

Hydrogen and plasticity. Hydrogen and dislocations. Hydrogen trapping.

Hydrogen-deformation interactions. Role of stress-strain fields.

Effect of cyclic loading on hydrogen embrittlement. Hydrogen assisted fatigue.

Multiscale approaches to environmentally assisted cracking and hydrogen embrittlement.

Fracture and structural integrity at all scales in an aggressive environment.

Computational approaches to the process of embrittlement or degradation.

Microscopic approaches. Fractographic analysis of the damage/fracture process.

Please send by email the title of your presentation together with the name, affiliation and email address of the corresponding author and the names of the co-authors to:

toribio@usal.es

Abstract must also be submitted online **before 15 March 2017** through the ICSI 2017 website (<http://icsi.inegi.up.pt/>) assigned to this specific Thematic Symposium.