EASN Interest Group

Damage Tolerance of Welded Aerostructures

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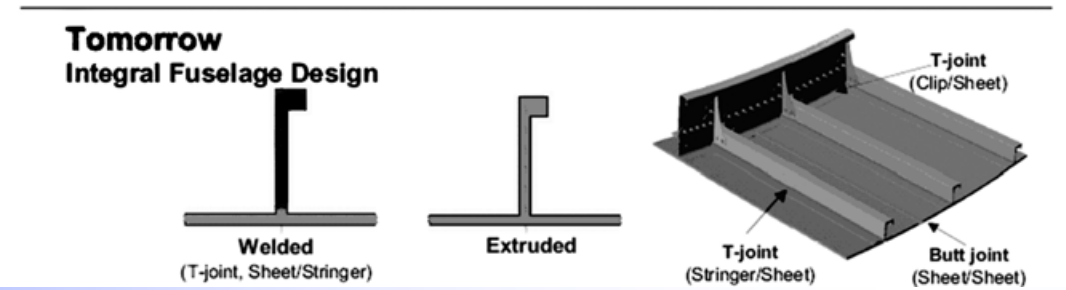
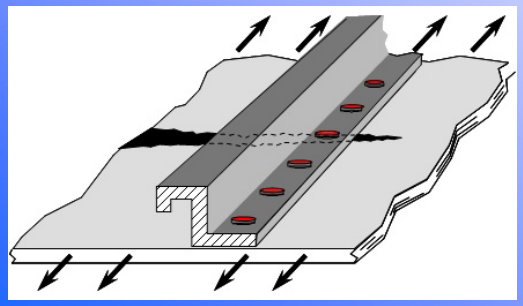
European Aeronautics Science Network

Recently established IG (2007)

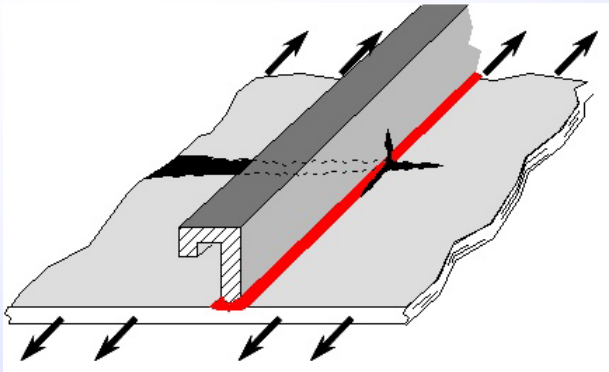
Main technological area: Aerostructures

Main research topics: Structural Integrity of welded airframes, fatigue/fracture behaviour of welded joints, modelling of microstructure/residual stresses influence on DT, structural design for improved DT of welded joints





Welded airframe structuctures offer reduced weight and lower manufacturing/operational costs compared to riveted parts



European Aeronautics Science Network

Collaborating Universities

Ecole Polytechnique Fédérale de Lausanne (EPFL) Switzerland
University of Parma (UPARMA) Italy
University of Patras (LTSM-UPatras) Greece

Collaborating Research Centers

GKSS Research Centre (GKSS) Germany
National Aerospace Laboratory (NLR) Netherlands

Recent Activities :

Active IG in the preparation of research proposals in FP7

Submission of 2 Collaborative Project proposals in 2007, 2008

2 meetings held during 2007-2008 to establish research content for proposal submission in the Aerostructures thematic area (Aircraft Safety, Green Aircraft, Aircraft Development Cost, Aircraft Operational Cost)

Exchange of information/scientific ideas within IG through electronic email

Preparation/Submission of Proposals:

1st Call FP7:

REMIGRA (ADVANCED DAMAGE TOLERANCE ANALYSIS OF WELDED ALUMINUM AERO-STRUCTURES CONSIDERING **RE**SIDUAL STRESS AND **MI**CROSTRUCTURAL **GRA**DIENTS)

2nd Call FP7: (resubmission)

LOCAL (Tailored Damage Tolerance of Laser Beam Welded Airframe Structures via **Local** Engineering)

Aim of proposed research: Development of methodologies to tailor/improve DT performance of welded airframes by accounting for the effects of modified microstructures/local material properties and RS fields of the welds in assessment of DT performance

Future actions for financing activities of the IG:

- Consideration of proposal preparation for 3rd Call in FP7

Issues for discussion:
Metallic materials?
Established consortia experts in the field but still evaluation comments critical on consortium content
Resubmission of mature proposal based on reviewer comments still below threshold

- Participation in Marie-Curie Human Mobility Program

Aim: exchange of students within Universities for conducting PhD thesis, exchange of scientific expertise and knowledge

- Participation in ERASMUS Program

Aim: collaboration of Universities within IG through exchange of students for conducting Diploma thesis, travels of Professors, exchange of knowledge