Identification of the installation/facility :

Country: Ireland
Location (city): Limerick
Name of the facility: Irish Centre for Composite Research
Date of construction or of acquisition or of main refurbishment: 2010
Owner: University of Limerick
Contact point: Tel: +353-61-234164

Internet site: www.ul.ie/mssi

Technical characteristics:

1 - Type of infrastructure

Wind tunnel	☐
Propulsion bench	☐
Structures facility	☐
Material facility	☒
Simulator (ex. Flight simulator, tower, …)	☐
Flight test bed (aircraft, embedded facilities, …)	☐
Supercomputers	☐
Other	☐

2 - Main technical characteristics

The Irish Centre for Composites Research (IComp) was established in 2010 under the Competence Centre initiative of Enterprise Ireland and IDA Ireland. It is hosted by the University of Limerick (UL), which is the leading composites research establishment in the Republic of Ireland.

IComp is working in partnership with academia and industry across the whole of Ireland with the aim of transforming Irish participation in the composites industry by focusing on the critical requirements of a number of industrial sectors including aerospace, automotive, renewable energy generation and construction.

At UL there is extensive expertise in the science and engineering of composites in the Faculty of Science and Engineering, which includes a comprehensive range of modern processing equipment and test facilities, to which IComp has access. Fundamental scientific support is available through the Materials and Surface Science Institute (MSSI) at UL where there is a suite of state-of-the-art equipment together with scientific specialists.

3 - Research domains which can be addressed (refer to ACARE taxonomy)

All aspects of composites research

4 - Main (or specific) associated measurement techniques

Manufacture

- LBBC Autoclave (1m x 3m)
- Hot Drape Former (out-of-autoclave)
- Plastech RTM system

- VARTM Mould and Control/Monitoring System
- 'Clean-room' for Laying-up

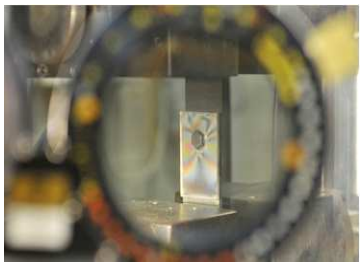
Composite Cutting/Drilling/Finishing

Mechanical Testing

- Zwick (500kN)
- Zwick (300kN with temperature control)
- Zwick (100kN with temperature control)
- Zwick (50kN with optical extensometer)
- High-speed Zwick (50kN, up to 20m/s)
- Tinius-Olsen (5kN and 10kN)
- Photron High-speed camera (675k frames/s)

2D & 3D digital image correlation strain measurement

Inspection



- Ultrasonic C-scanner
- Phasor V3 Digital Ultrasonic Flaw Detector
- Faxitron Model 43855D X-ray Cabinet
- NTB EZ 240 Digital x-ray scanner

Microscopy/SEM/TEM/AFM (MSSI facilities)

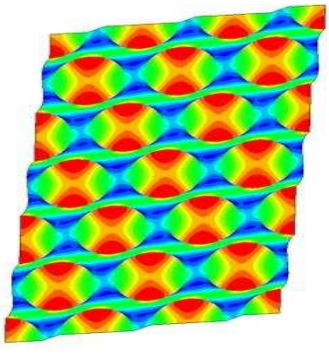
Measurement

- Strain Gauge Signal Conditioner and Data Acquisition System
- Video Extensometer
- Reflection Polariscope
- Portable Strain Gauge Conditioner
- Extensometers
- Deflection Gauges
- Multiple LVDT's and Miniature Load cells

Multichannel signal analyser for vibration analysis

Modelling

- IBM 160 CPU computer system
- ABAQUS (Finite Element Analysis)
- WARP3D (microstructure and FEA)
- LAAMPS (Molecular Dynamics modelling)
- In-house composite damage models



5 - Operational status
- Fully operational -

6 - picture :see above

Financial elements:

Replacement cost (M€uros)

Less than 10	☐
10 to 30	☒
30 to 60	☐
60 to 100	☐
More than 100	☐

Practices concerning:

Access policy

Contact through Prof. Terry McGrail	+353-61-234164
Website:	http://ul.ie/icomp/

Support: National and open to international project

Origin of information ('signature'): Dr. Paul Butler – Enterprise Ireland 11/11/11