

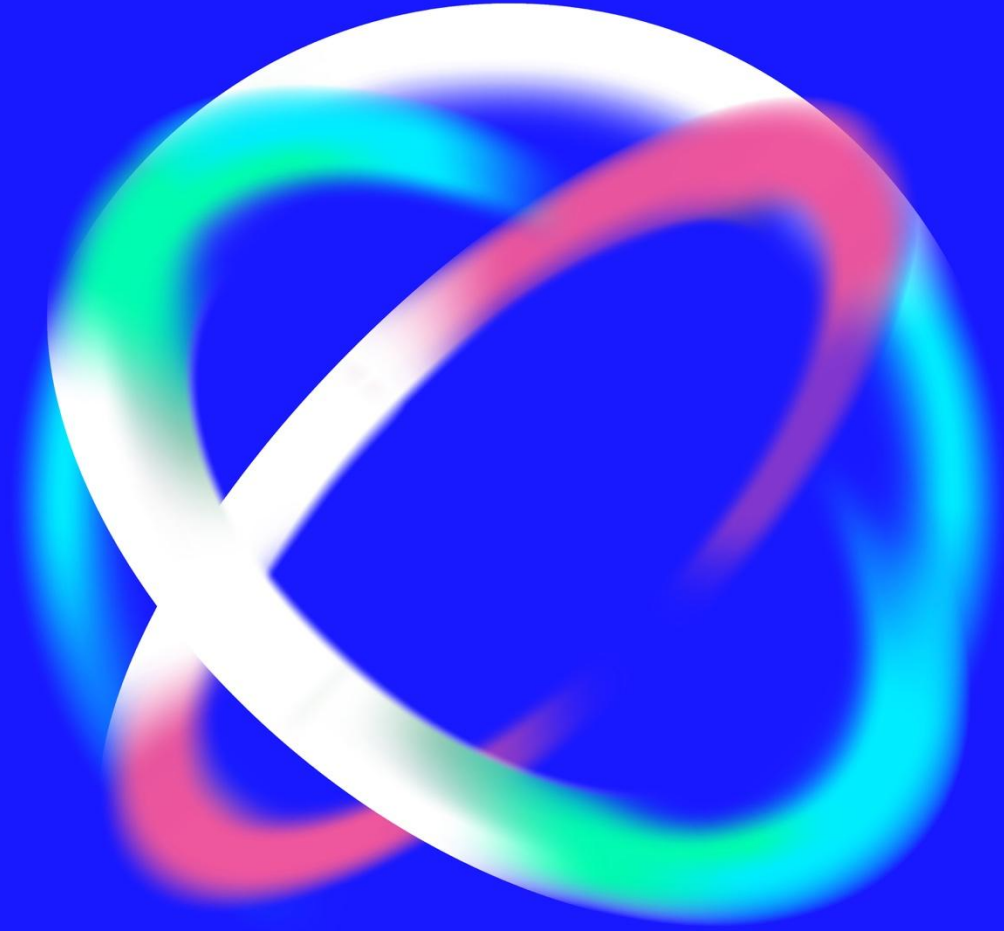


NCC – Composite Conversion for NDT Technicians

Rob Rose – Responsible L3 & Engineering Capability Lead for NDT & Metrology

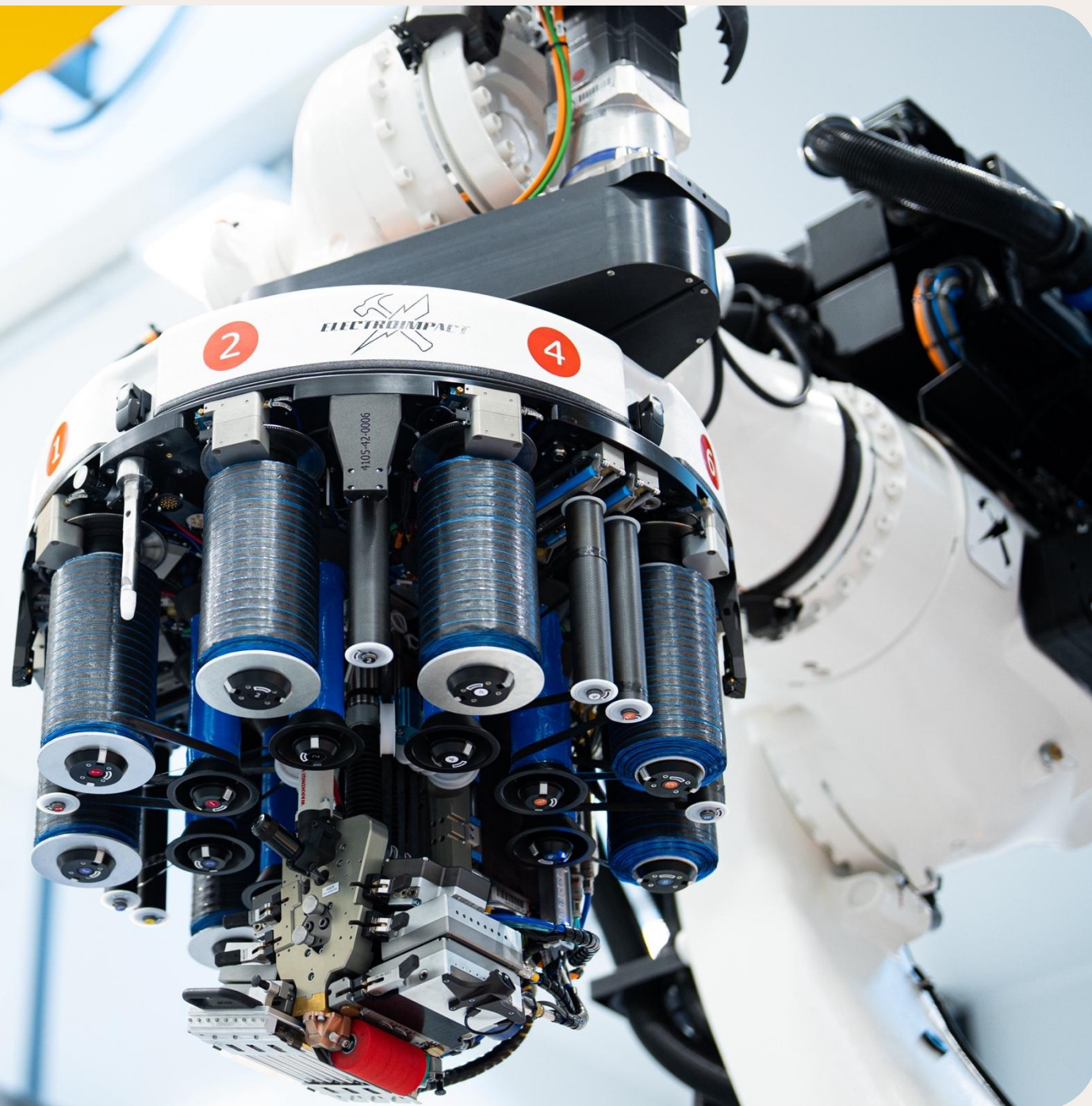


Innovating for industry



NCC is a world-leading innovation organisation that transforms cutting-edge research and technology into industrial impact.

As industry's innovation partner, we help create a sustainable, productive and resilient future; transforming today's industries and creating tomorrow's.



NCC at a glance...



Over 100
academic partners



10 state-of-the-art
technologies

300
businesses
supported
per annum

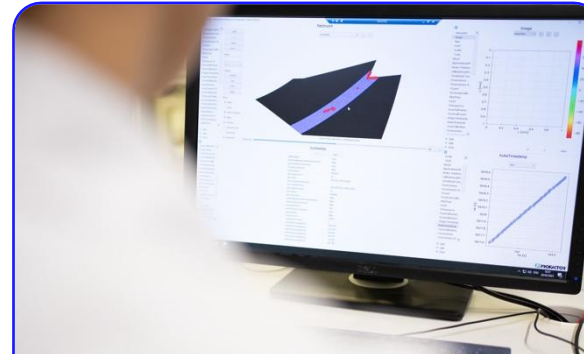


More than 400
specialist engineers



£50m turnover

£300m
invested in
capabilities



Over 70 members



5 locations

Our sector portfolio



Aerospace

**Innovating globally-leading
advanced manufacture**
Aerostructures, propulsion,
interiors, systems & in-service



Defence

Innovating sovereign capability
Advanced materials, hypersonics,
autonomous systems, digital
engineering, emerging tech



Energy

**Innovating the
energy transition**
Wind, hydrogen,
oil & gas, new nuclear



Other sectors

Innovating & growing UK businesses
Space, growth sectors & foundation
industries, adjacent markets
(e.g. AI & materials)

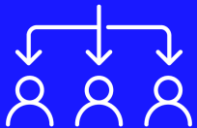


NCC thought leadership and specialist training interventions help prepare the future manufacturing and engineering workforce.



Defining future skills

Connect workforce development with emerging technologies.



Developing future workforce

Develop future engineers and innovators.



Delivering skills

Expert-led training to develop people and the future workforce.



Composites Training

The NCC offers world-leading composites training,
Designed to re-skill and upskill teams and individuals across every
sector to build composites capabilities in a range of disciplines.



Online self-paced eLearning



In-person courses
NCC, Bristol



In-person courses
At customer site



Virtual Classrooms

NCC Commercial
Training

Composite
Manufacturing

Hydrogen Energy

Sustainability

Digital Technology

The NDT Skills Problem

Aging NDT population

Losing skills
Knowledge not
captured
Knowledge in silos



Perception of differences



=



Strong emphasis on metallic NDT



A Solution?

Training Expertise...

NCC already offers training in many aspects of Composite Design and Manufacturing

Specialist knowledge...

NCC has NDT staff with considerable experience applying a range of NDT Methods to Composites both in an industrial setting and in academia

Put them together...

Can we combine these to develop a useful training offering combining background theory and hands-on, real-world practise?

NCC Offering

Foundation on manufacturing

- Materials
- Manufacturing methods

Make your own sample

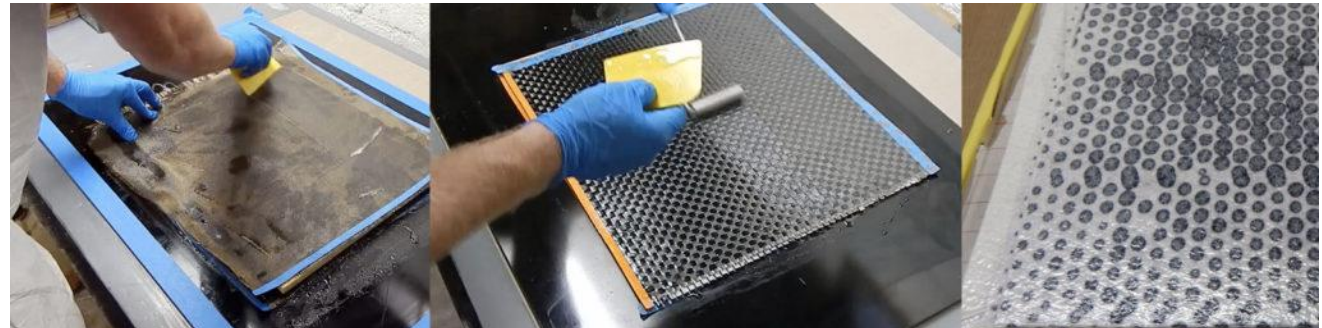
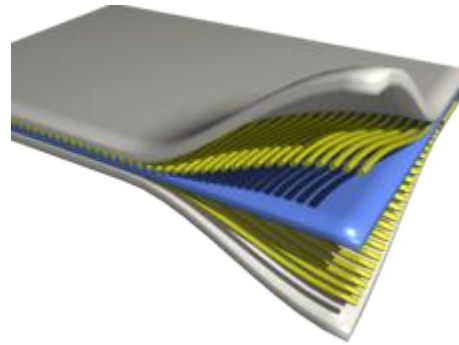
- Simple geometry
- Include artificial defects

Understanding of what could go wrong

- Errors in layup
- FOD
- Cure problems

Failure mechanisms

- In manufacture
- In service



NCC Offering

How defects present

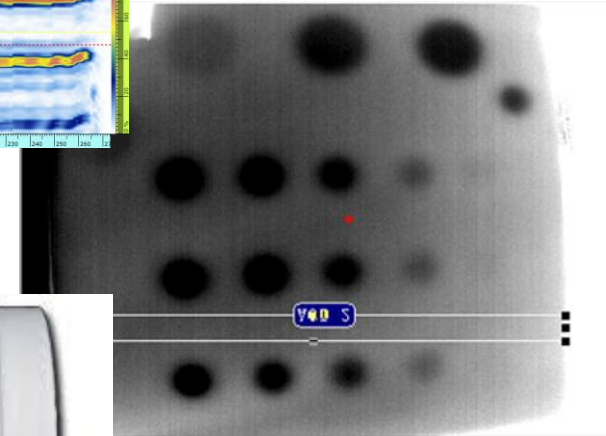
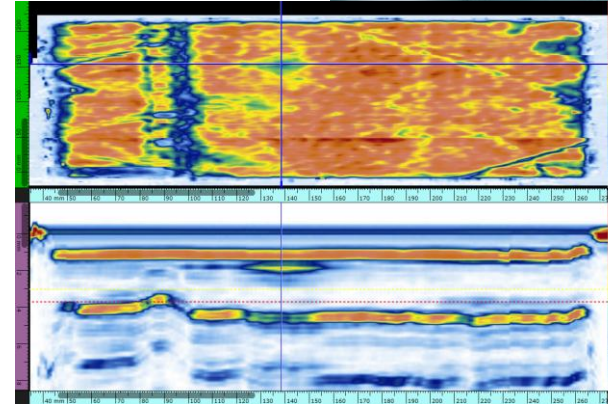
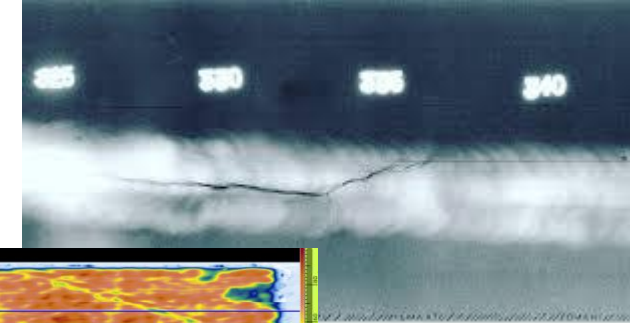
- Comparison of defect types – metallic vs. composite
- Understand challenges of different materials and manufacturing methods for NDT

Methods most commonly used

- Introduction to less familiar methods
- Understanding of benefits and limitations of each

Hands-on practice

- Inspect your own sample using a range of available methods/techniques
- Find your seeded defect(s)
- Recognise challenges to application by advanced manufacturing methods



Future

- Collaboration with BINDT to enhance composite content for on-line Product Tech Training
- Roll-out training to offer 'Train the Trainer'?
- Equipment suppliers?
- Offer to businesses who are making a transition to, or who are seeing more engagement with, composites?

Interested?

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Questions?

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