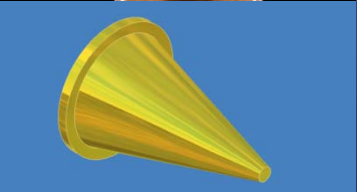
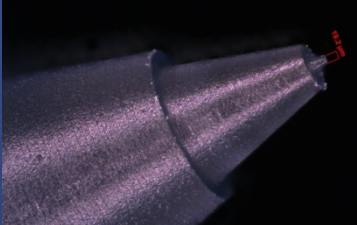
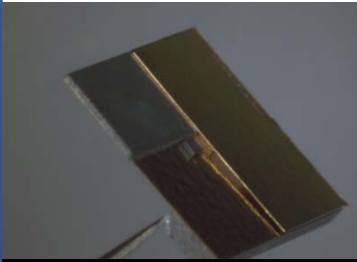


Scitech Precision - Target Fabrication Capabilities and Recent Experimental Delivery

Kate Ronayne

29th September 2010

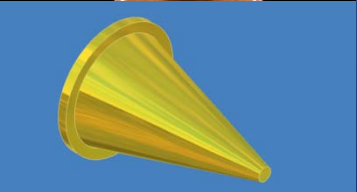
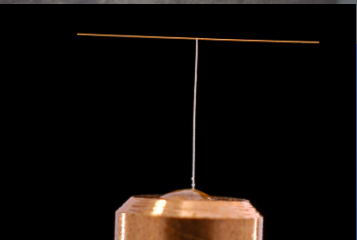
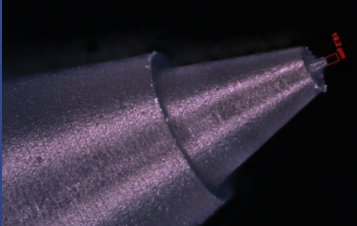
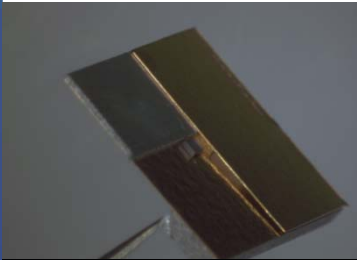
- Introduction to Company
- Overview of Capabilities
 - Coating
 - Assembly
 - Lithography
 - Machining
- Novel target designs





Company History

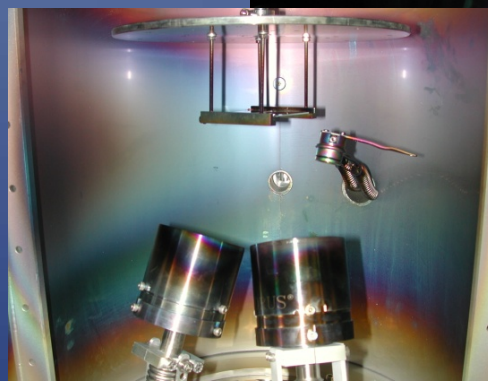
- Setup April 2009
- Access to STFC
 - Components
 - Services
 - Full experimental campaign delivery





Thin Film Coating

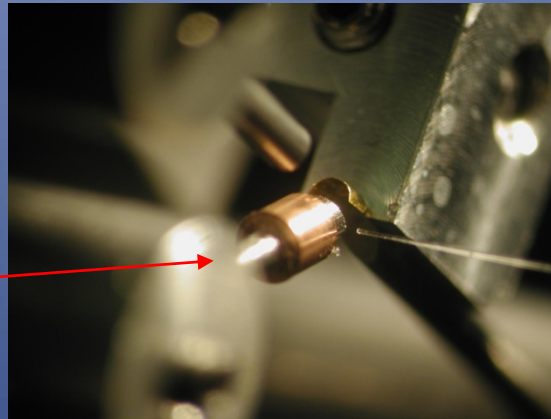
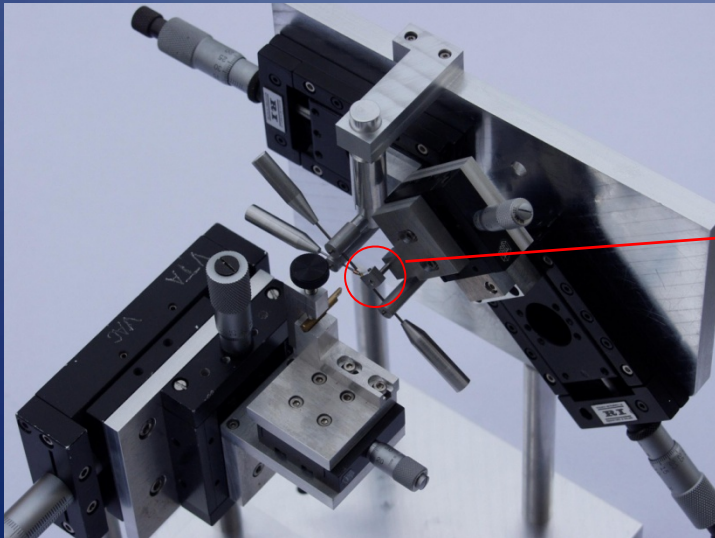
- Plastic Coating
 - Parylene Spin and Dip Coating
- Sputtering Plants
- Electron Beam Deposition
- Thermal Evaporation
- Electroplating





Micro-Assembly

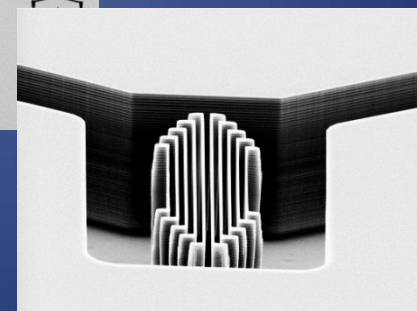
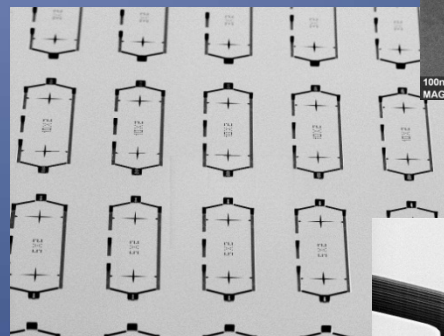
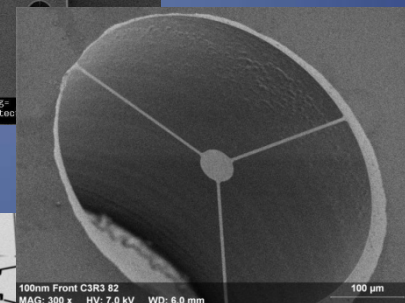
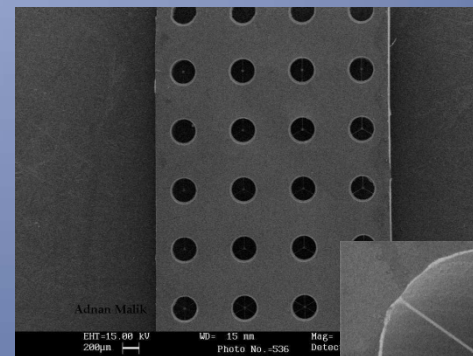
- In-house fabrication technicians
- Dedicated assembly stations
- Bespoke Jig Design





Electroplating and Lithography

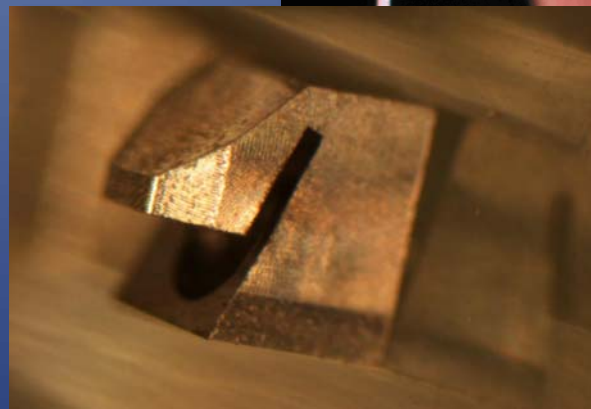
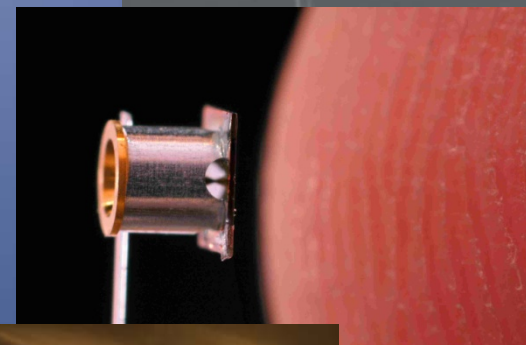
- Photolithographic mask production
- E-beam mask production
- Deep reactive ion etching
- Wet processing





High Precision Micro-engineering

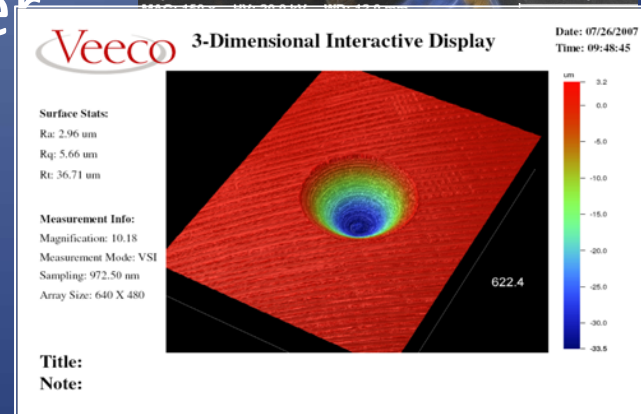
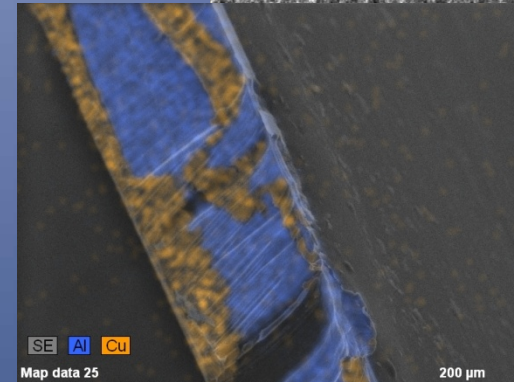
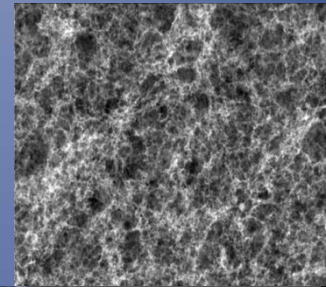
- Micro-machining
 - CNC milling machines
- Bespoke Assembly Jigs
- Specialist Electroplating
- Mass production
 - Holhraums and cones
 - X-ray Backlighters





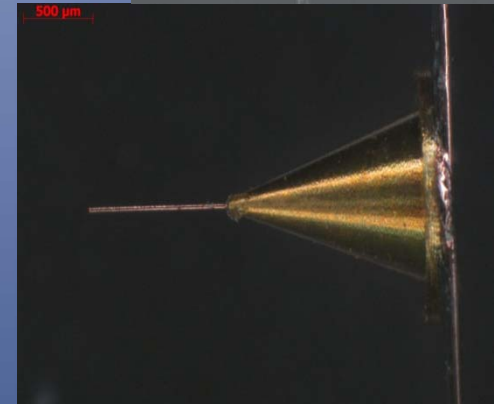
Characterisation

- High specification optical microscopes
- Coordinate measuring microscope
- SEM with EDX
- Wyko white light interferometer
- Surface profiling systems



Micro Cone production

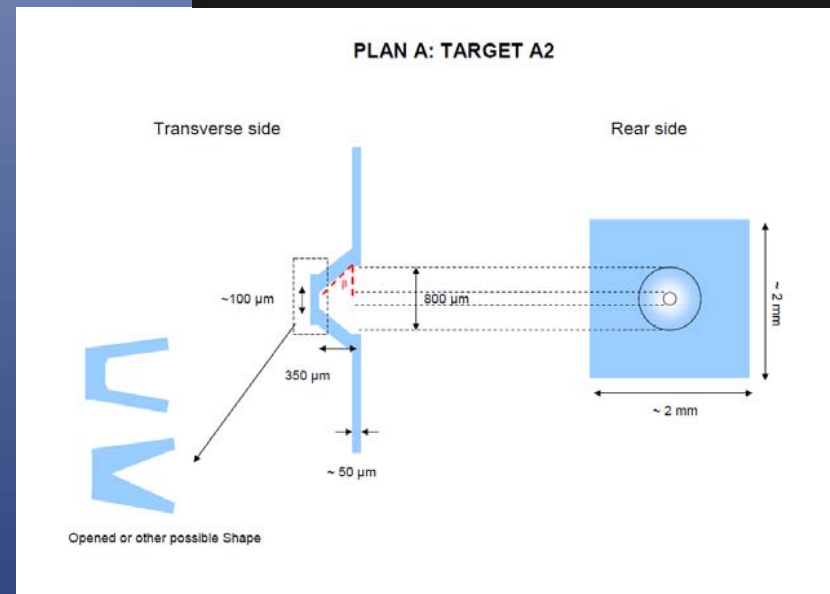
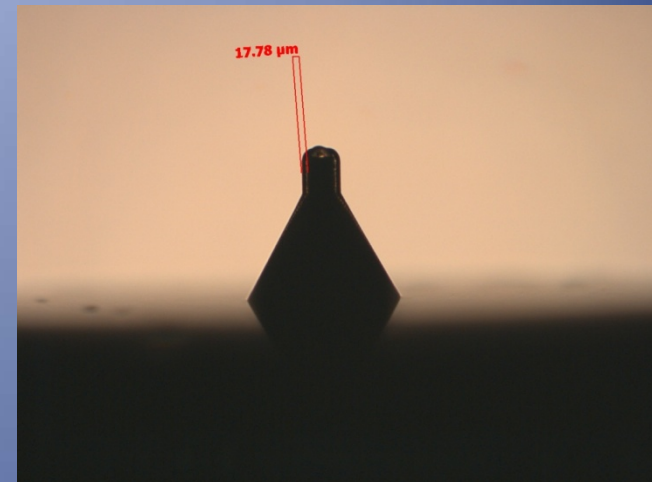
- Experimental campaigns in US and Japan
- Variable geometries
 - Standard Cones
 - Parabolic Cones
 - Layered Cones (under development)





Foam Holding Cones

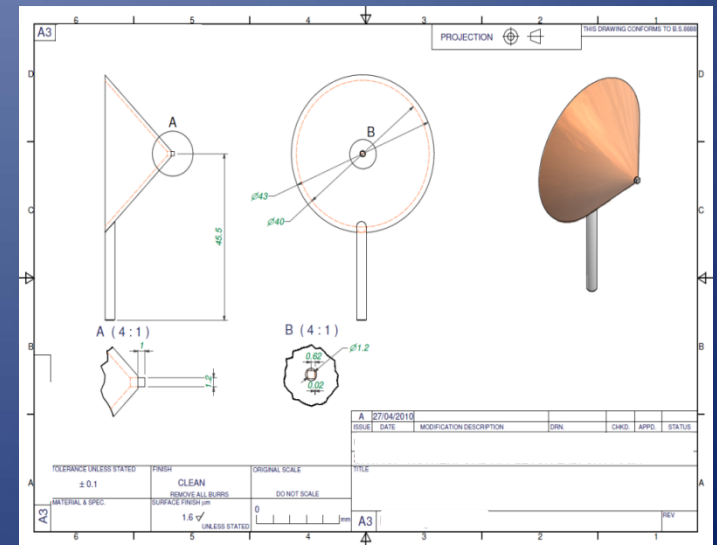
- Astrophysics Simulations in France
- Shaped Plastic Cones
- Foam filled at St Andrews University





Copper Cone Targets

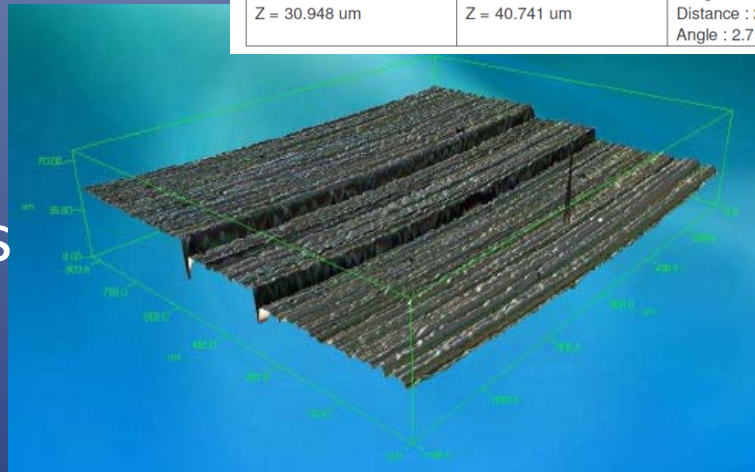
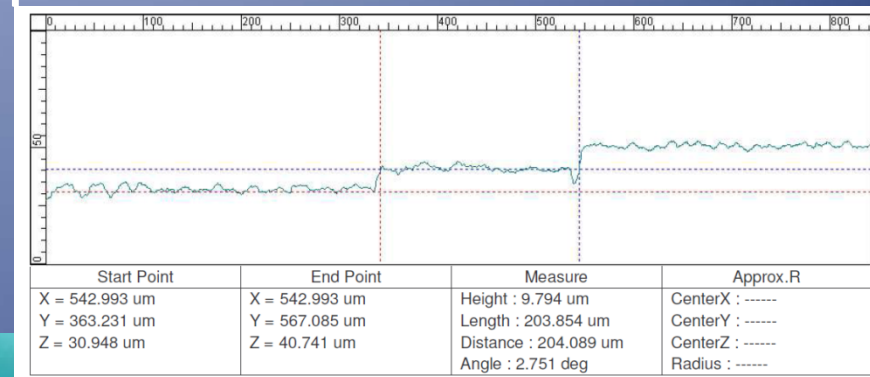
- Machined copper cones for X-ray scattering experiments
- Precision foils mounted onto cone tips
- Full experimental support
 - Alignment wires
 - Test targets
 - Full assemblies





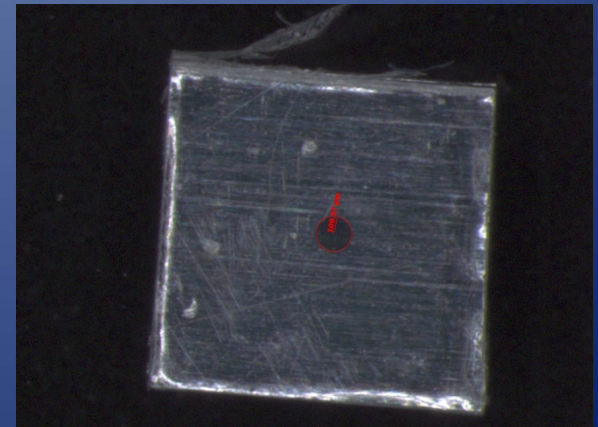
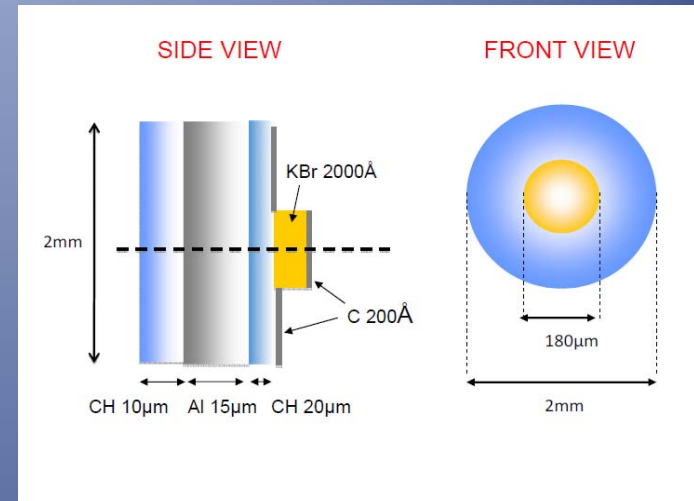
Iron Step Targets

- Step targets for shock experiments
- Precision machined
- 10 μm feature sizes
- Characterisation
 - Surface roughness
 - Step heights



Micro-Dot Targets

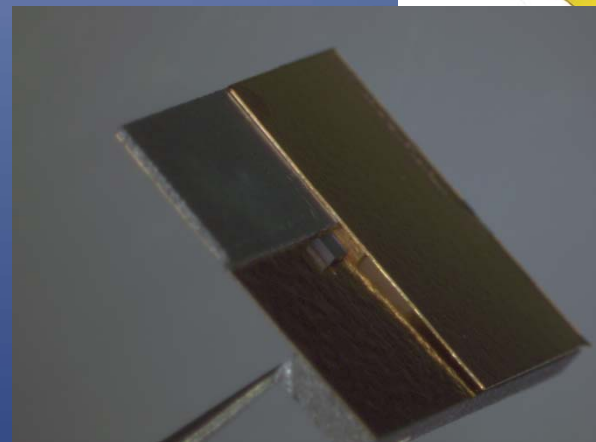
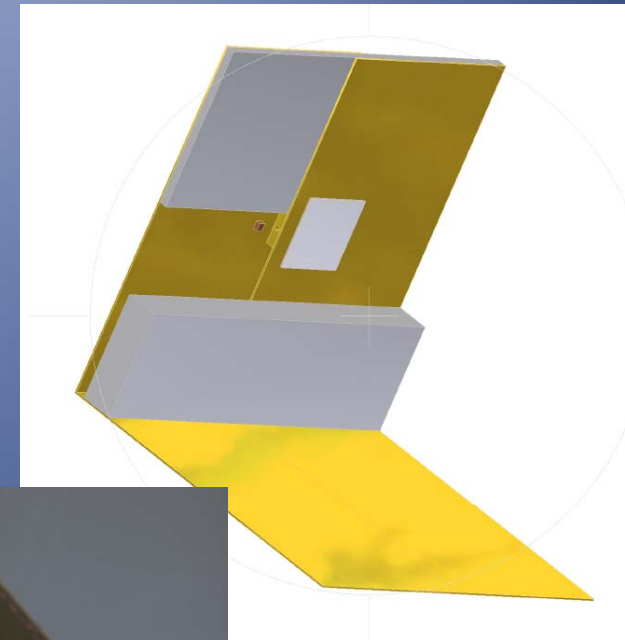
- Multi-layer foil
- KBr Coating through mask
- Full characterisation of dots
 - Diameter
 - Thickness





X-ray Backlighter and Shock Targets

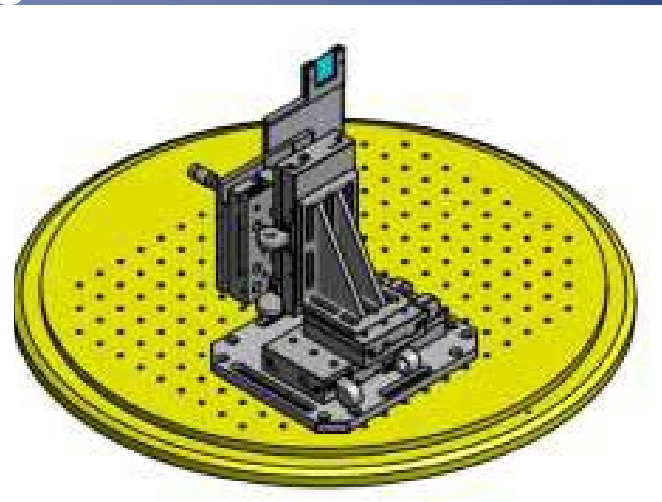
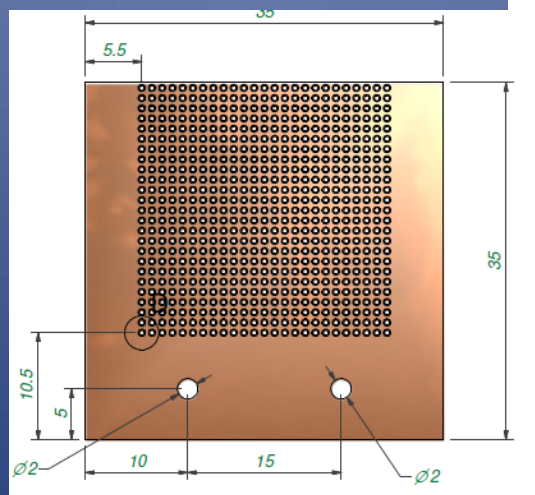
- Shock experiments in Japan
- Integrated assembly
 - Collimated X-ray production
 - Diamond targets for shock measurement





Thin Foil Targets

- High repetition rate experiment in US
- Boron Carbide and Carbon foils
- 500 nm and 1 μm



Acknowledgements

- CLF Target Fabrication
- SSTD Precision Development Facility
- TBU Micro Nano Technology Centre

Thank you for listening!

