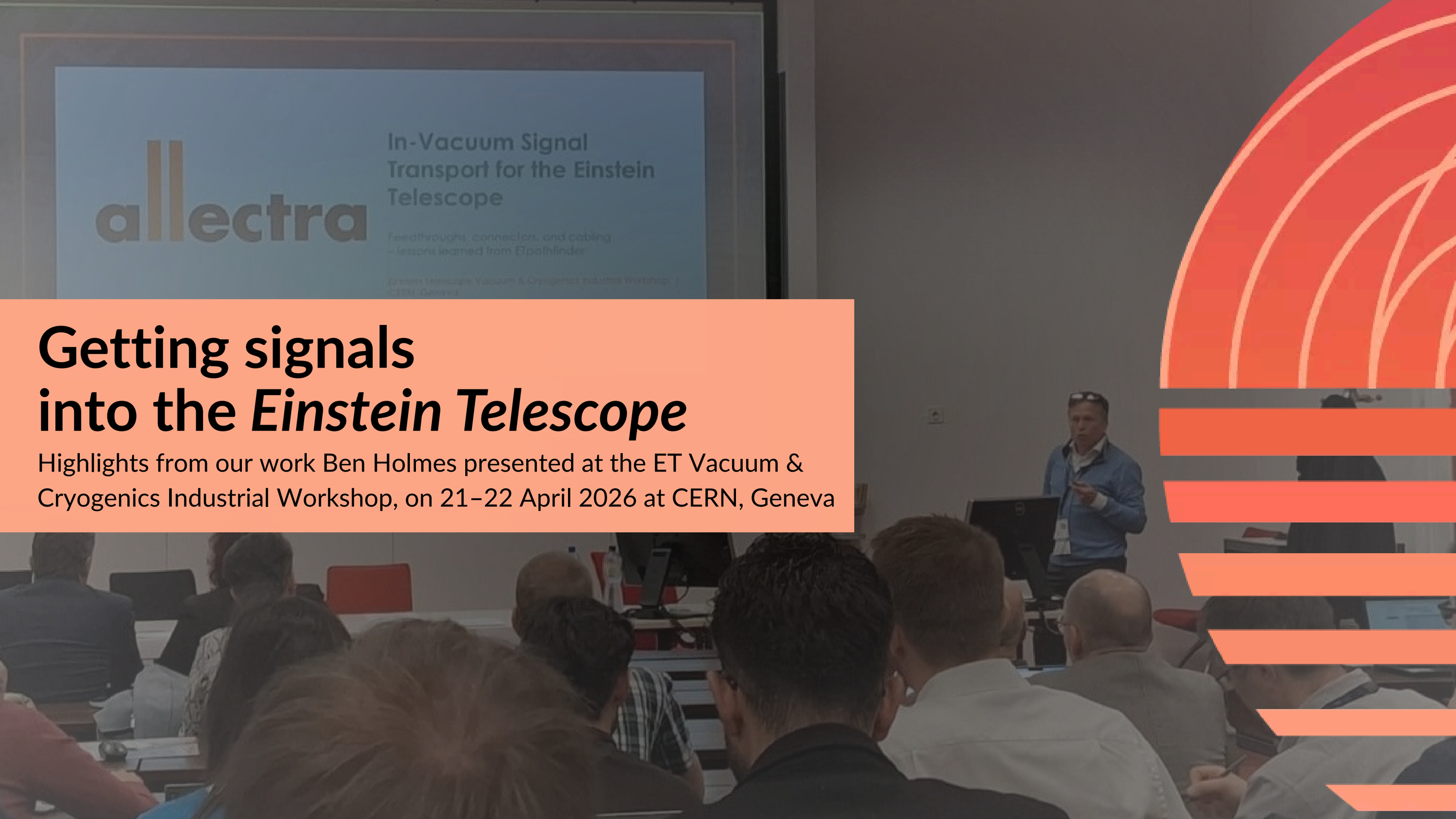

Getting signals into the *Einstein Telescope*

Highlights from our work Ben Holmes presented at the ET Vacuum & Cryogenics Industrial Workshop, on 21–22 April 2026 at CERN, Geneva

The Einstein Telescope is a step change Not just in science , but in *engineering*

- ET will be a kilometre-scale underground observatory with over 100 km of UHV beam tubes and three nested interferometers.
- The cabling infrastructure has to match that ambition: long runs, varied configurations, large quantities all inside vacuum, all low-outgassing, all with zero tolerance for failure.

>100 km
UHV beam tube network

3
nested interferometers

0
margin for outgassing

ETpathfinder was the proving ground for *Allectra's capabilities*

- Manufacturing DN300CF flanges with 15 feedthroughs each was a big engineering challenge.
- Welding at this scale demanded a new approach to quality control compared to standard smaller flanges

12
flanges

124
connectors

300m
in-vacuum cable

4500
signals

ETpathfinder was the rehearsal
ET is the *performance*

400-pin density

High-density feedthroughs in development

In-house Kapton cables

Dedicated production line in Germany

Triaxial cables

Low-noise cables for ultra-low current signals

Specific proven QC

Specific QC protocols for DN300CF feedthrough flanges

Next-gen gravitational wave detector challenges are not just optical and seismic, but also *connectivity*

Get thousands of low-noise signals

in and out of a UHV system

at cryogenic temperatures

over hundreds of metres

Interested in UHV feedthrough and cable solutions for large-scale physics infrastructure?

sales@albasci.com www.albasci.com Follow us :