

# Activity summary

- **Commercial projects – high field/stored energy solenoids**
  - Successful design, manufacture and test of 20 T, 100 mm bore magnet
    - 20 T @ 4.2 K
    - Stored energy > 3.7 MJ
    - Persistent to < 10 ppm/h
    - Compact design,  $\phi 525$  mm
  - Delivered two more 15 T, 250 mm outsert magnet systems (photo)
    - Customer HTS insert integration targeting > 27 T
  - Delivered and installed 12 T, 320 mm magnet for dark matter detection
    - Persistent to < 10 ppm/h
    - Low-field cancellation region above main coils for cold electronics placement
- **External projects**
  - EU programmes
    - ISABEL
    - SuperEMFL
  - $MgB_2$  wind-and-react coil trial – achieve practical current densities using existing equipment
    - Continuously-produced cable process (Epoch Wires [UK] , Bekaert [BE]) / coil fabrication, reaction and impregnation (Oxford Instruments [UK]) / testing (University of Southampton [UK])
    - 1000 A/mm<sup>2</sup> @ 2.8 T @ 20 K; > 20 quenches without degradation – presented MT27, submitted IEEE Trans. App. Sup.
  - Multiple quantum technologies partnerships (Rigetti, InnovateUK, ...)

