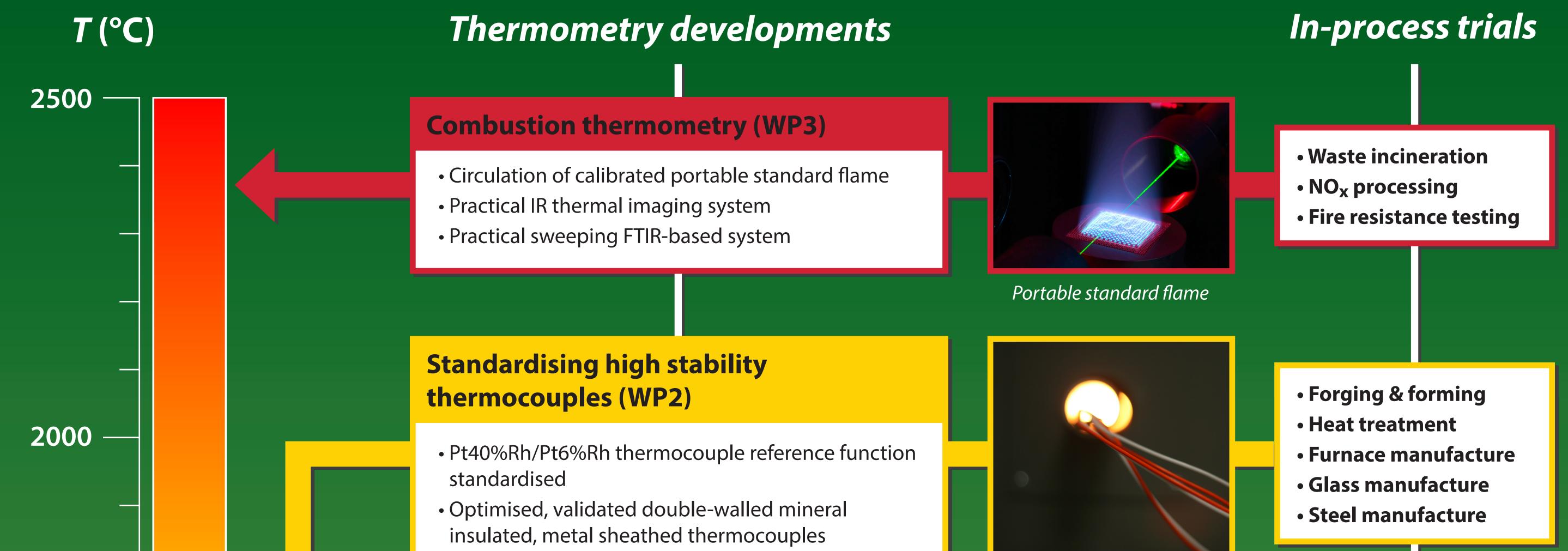
Enhancing process efficiency through improved temperature measurement – EMPRESS2





1500

1000

500

SRT-i28

Surface temperature:

to 1000 °C

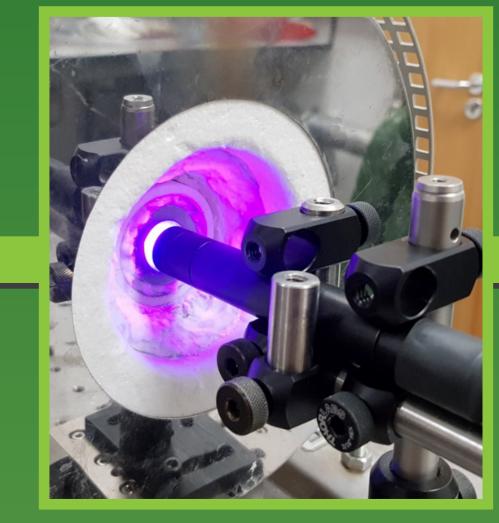
emissivity problem

phosphor thermometry (WP1)

• Combine with thermography to overcome

• Decay-time phosphor thermometer to 1000 °C

Platinum/rhodium thermocouple

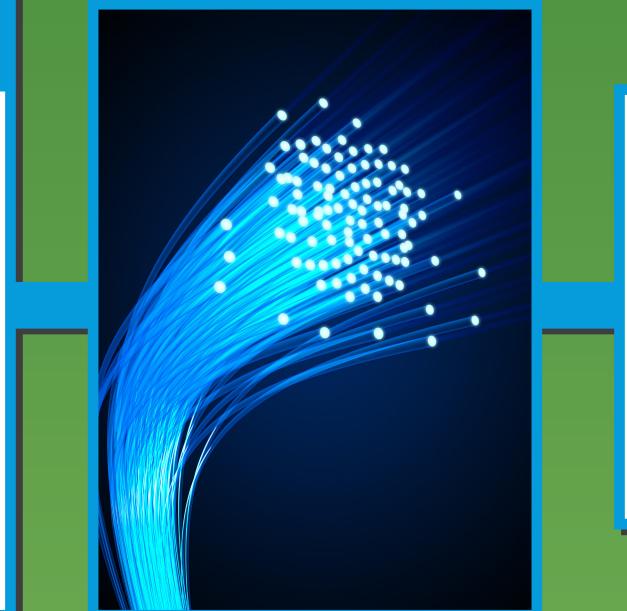


Phosphor thermometer

Harsh environments: fibre-optics (WP4)

• Practical 2D intensity-ratio phosphor thermometer

Phosphor-tipped fibre-optic thermometers to



 Automotive brake disks

- Welding
- Forging

- 650 °C, cross-validated
 - Hollow-core phosphor-tipped fibre-optic thermometer suited to harsh environments
 - Distributed fibre-optic temperature sensor based on Brillouin scattering, to 650 °C
 - Hybrid blackbody/FBG thermometer to 1500 °C
 - New traceable calibration techniques for fibre-optic temperature sensors

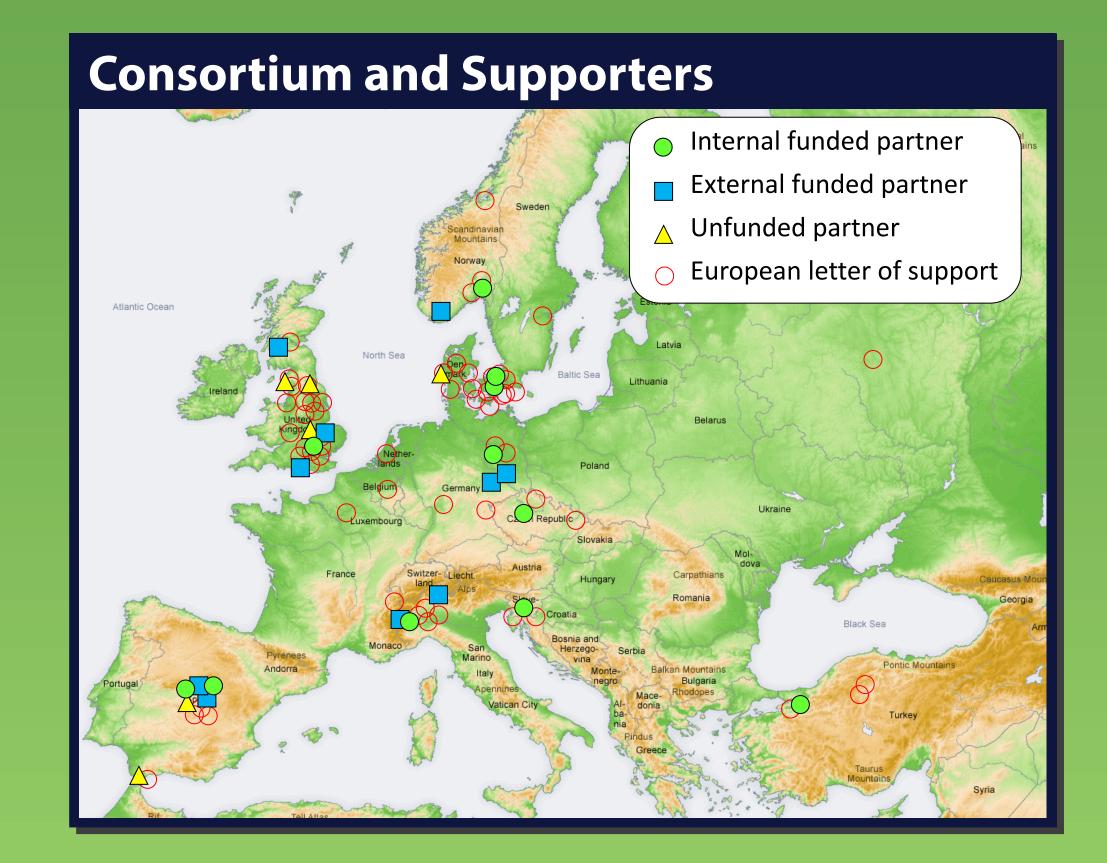
IMPACT

- In-process trials of new sensors and techniques
- Exploitation of IP
- Traceability to ITS-90 in-situ
- Strong linkage to standardisation
- Presentations at trade fairs and conferences
- 13 peer-reviewed + 10 trade journal articles
- Updated Euramet guide on surface temperature measurement
- Two industrial-focused workshops
- 67 letters of support from industry

Ionising radiation

- Magnetic fields
- Plasma storms
- Forging & forming
- Silicon processing
- Steel manufacture
- Furnace manufacture

Hollow-core fibre-optic





• 118 members of the EMPRESS stakeholder community

