

EMPIR GRACE - Good Practice Guides on the electrical characterisation of graphene using contact- and non-contact methods

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The GRACE project (2017-2020) [1] aims to an accurate approach to the electrical characterisation of graphene, through the development and comparison of both contact and non-contact methods (see Figure 1), with traceability to the electrical SI units.

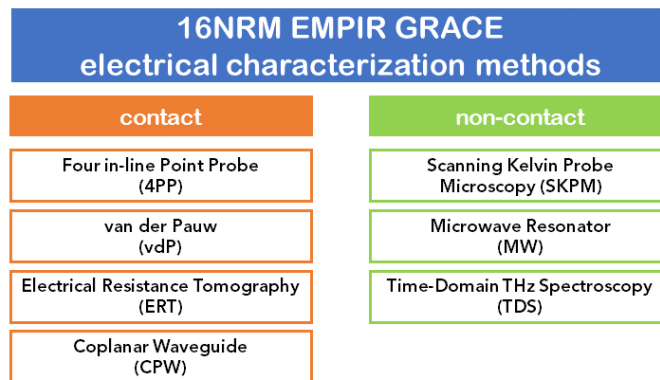


Figure 1: Characterization methods investigated by GRACE.

The GRACE consortium is also collaborating with standardization bodies, i.e. International Electrotechnical Commission Technical Committee 113, to develop new technical specifications that will enable the industry to harmonize the quality of the graphene-based future electronic products. Within the GRACE project we developed validated electrical characterisation protocols specifically for large area graphene.

Chemical vapour deposited (CVD) graphene samples were produced by the industrial partners and circulated among the other partners during the project in order to test, on each sample, more than one of the above-cited characterisation methods and compare the measurements outcome.

The results of this inter comparison allowed to understand how to meaningfully implement different methods, and the gained experience is now collected in two Good Practice Guides, that will be presented at this Conference.

The GRACE Good Practice Guides are already available as open access documents on the project website [2].

REFERENCES

[1] EMPIR 16NRM01 GRACE --- Developing electrical characterisation methods for future graphene electronics.

[2] Online: <http://empir.npl.co.uk/grace>