

Electrical Characterization of Large Area Graphene Layers

Martin Busch, **Marcus Klein**

SURAGUS GmbH – Sensors and Instruments

Corresponding author: martin.busch@suragus.com

Keywords: graphene, electrical characterization, non-contact measurement, defect detection, large area graphene, transferred graphene

The current advances in the research and manufacturing of large area graphene layers are promising towards the introduction of this exciting material in display industry and other electrical and optical applications. New production technologies in the fabrication of flexible displays, touch screens or printed electronics apply graphene layers on non-metal substrates and bring new challenges to the required metrology. Traditional measurement concepts of layer thickness, sheet resistance, optical transparency and layer uniformity are difficult to apply to graphene and are often harmful to the product layer. New non-contact sensor concepts are required to adapt to the challenges and even the foreseeable inline production of large area graphene.

Dedicated non-contact measurement sensors are a pioneering method to leverage these issues in a large variety of applications, while significantly lowering the costs of development and process setup. Transferred and printed graphene layers can be characterized with high accuracy in a huge measurement range and even right during production. Large area graphene mappings are applied for process optimization and for efficient quality control.