TECHNOLOGY OFFER

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5D-POSITIONING OF SAMPLES AND PROBES

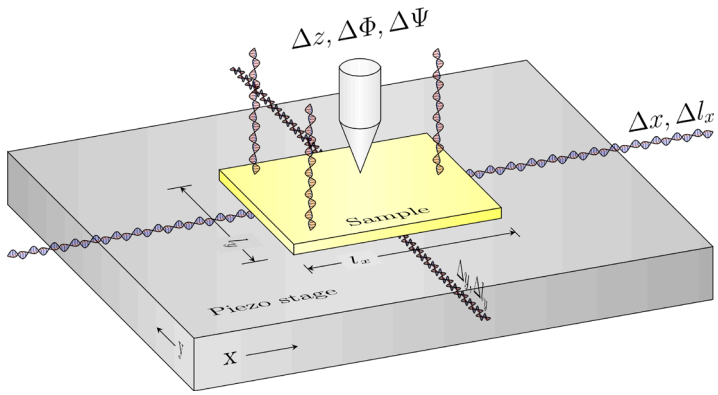
A platform for scanning probe techniques invented at the TU Wien eliminates thermal drift and enables exact positional clamping in 3 spacial and 2 rotational directions.

BACKGROUND

Scanning probe microscopic (SPM) methods are widely used for various characterization tasks, both as imaging or spatially fixed variants. Commonly a lot of effort has to be spent to counter the effects of thermal drift, as well as vibrational noise, in all spatial directions. This limits possible resolution and the maximum measurement time and creates artifacts. While some very measurement task-specific solutions exist, those solutions are not generic enough to adapt them from one sample system to others, and utilization in noisy environments is not possible with today's technology.

TECHNOLOGY

Real-time localization of sample vs. probe using laser-interferometry from different directions allows both a direct compensation for drift and compensation of thermal expansion in all translational and rotational directions. This allows for positional clamping for static measurements as well as real-time compensation for dynamic experiments down to thermodynamic limits without experimental time constraints. In addition, it opens the possibility to compensate for noise online, enabling the utilization of nanometer-precise metrology in production environments.



ADVANTAGES

- "real-time" correction for thermal drift and noise
- absolute distance clamping
- precise positioning
- method independent
- application in various scientific and production tools possible

REFERENCE:
M002 / 2021

DEVELOPMENT STATUS:
Technology validation in lab;
Prototype in development
TRL = 4

APPLICATIONS:
Nano-metrology, Design of adhesives, surface design, Nano-medicine, chip manufacturing

KEYWORDS:
Metrology,
Drift-elimination,
nano-position clamping

IPR:
AT filed
PCT filed
WO2022/256853 A1

OPTIONS:
R&D cooperation,
Development partnership,
License agreement

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Click here to watch the video!

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