



## **An estimation of the vibration damping of a laboratory room using seismic methods**

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A Selective Carbon Mill (SCM) can prepare structures of a minimum thickness of approximately 100 nm, e.g. to prepare samples for a Scanning-Tunneling-Microscope (STM). The device is very sensitive to low frequency vibrations. The designated laboratory room of the material physics department, Georg-August Universität Göttingen, is situated about 25 meters away from a road with heavy goods traffic. Therefore it is important to verify that the vibrational behaviour of the laboratory room to internal and external influences is within acceptable bounds. The measurements were performed using seismic methods. The following equipment was used: a Mark Model L-4-3D geophone with a main frequency range of 1-5 Hz and an arrangement of 12 PE-3 geophones with a main frequency range of 5-20 Hz. The uncoupling between room and passage as well as the damping in the room at multiple points with various connections between geophones and the floor was examined.

The results show that the laboratory room fulfills the necessary conditions of damping and uncoupling to be utilized for the SCM.