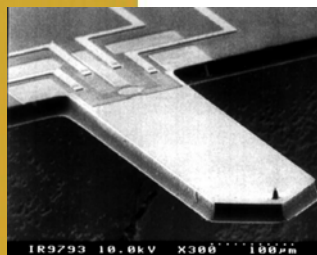


Piezoresistive Scanning Proximity Probes for Nanoscience



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Invité par Stefan Kubsky

Vendredi 4 mai à 15h00
Amphi du Bât. Accueil Soleil

Séminaires

This seminar is devoted to the realization of piezoresistive sensors used in scanning probe microscopy. It is expected that in the near future major technological breakthroughs in scanning proximal probe nanotools will allow for key scientific impact on analysis and synthesis of nanostructures. All the piezoresistive cantilever sensors described here are based on advanced silicon micromachining and standard CMOS processing. Moreover, using a newly optimized piezoresistive detection scheme process comprising a Wheatstone bridge, we have designed and fabricated piezoresistive cantilevers for atomic force microscopy, which improve surface topography resolution by an order of magnitude to 0.1 nm. The elegance of this concept is that by using an almost identical detection principle and differently functionalized tips or cantilever surfaces, we can detect subtle sample interactions (mechanical, electrical, thermal, and chemical) with a significantly more compact system than with optical beam deflection techniques. For non-contact scanning force microscopy, we integrate a thermally driven bimorph actuator with the piezoresistive cantilever and make use of direct-oscillation in a higher flexural mode. The cantilever then operates in the phase-shift atomic force microscopy (AFM) detection technique.

Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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