

Comment on "Scanned-cantilever atomic force microscope" [Rev. Sci. Instrum. 64, 908 (1993)]

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It has recently been brought to our attention that a statement in our article "Scanned-cantilever atomic force microscope" (Vol. 64, pp. 908–911) is incorrect. Our assertion that "All AFMs described in the literature to date scan the sample..." overlooks an article by M. Hipp, H. Bielefeldt, J. Colchero, O. Marti, and J. Mlynek in *Ultramicroscopy* **42–44**, pp. 1498–1503 (1992).

This article describes a scanned-cantilever AFM that, like ours, uses optical lever detection. As in our article, the authors discuss how, in theory, motion of the cantilever could affect the instrument's performance. Our article presents three potential mechanisms by which this can occur, illustrated in Figs. 3(a), 3(b), and 3(c). Due to the differing construction of their instrument, Hipp *et al.* do not consider mechanism 3(c). They come to a similar conclusion as we did concerning the effect of mechanism 3(b). Their discussion of mechanism 3(a) (movement of the cantilever under the laser spot) differs from ours in two respects. First, in their

instrument the laser spot is much larger than the cantilever, while in ours the laser spot is much smaller. More significantly, Hipp *et al.* do not consider the effects of warped cantilevers, which had the greatest impact on the performance of our instrument. Although they mention the use of background subtraction to counter the effects of cantilever motion, it is not clear whether they have implemented it.

Hipp *et al.* also discuss the effects of sample tilt, which we do not, since these effects occur whether the instrument scans the sample or cantilever, and most force microscopists remove them by routine post-acquisition image processing (i.e., "plane subtraction" or "leveling").

Finally, Hipp *et al.* do not present experimental data concerning the effects of cantilever motion, the subject that occupies the bulk of our article.

We apologize for this oversight and hope it has not caused any inconvenience.