the dependence of microscopic friction forces and friction coefficients on normal loading force on both the original top and freshly worn surfaces of three solid materials: silicon, Mn-Zn ferrite and Au. In addition, the wear on the surfaces were monitored, and correlated with the friction regimes. It was observed that:

1. There exists a critical point on the friction versus normal loading force curve when a sharp diamond tip slides on a solid surface. The critical point divides the friction curve into two distinct regimes: a low friction regime where the friction coefficients are from 0.03–0.06 for all the tested materials, and a high friction regime where the stable friction coefficients are from 0.12–0.38, and the values are quite different for the tested materials. For the same diamond tip, the critical loads at the critical points are significantly different for different materials. For the same material, the critical loads are different for different tips, but the average pressures calculated by the Hertz elastic contact theory are close at the critical points.
2. The wear depth measurements show that the friction regimes correspond to the surface wear regimes. In the low friction regime, no significant wear occurs (corresponding to a no-wear regime). In the high friction regime, significant wear occurs (corresponding to a wear regime).
3. The freshly worn surfaces have similar tribological behaviors as the corresponding original top surfaces. The friction coefficient versus loading force curves on the original top surface and the freshly worn surface showed no significant difference for all the tested solid materials.
4. Based on the results presented it appears that a no-wear contact sliding condition is possible if the loading force at all asperity contacts remains below the critical value. The implications for contact recording on hard magnetic disks are important.

Acknowledgment

This research was supported by the Computer Mechanics Laboratory at the University of California at Berkeley and the Kaneko Research Laboratory at the NTT Interdisciplinary Research Laboratories. C.-J. Lu would also like to acknowledge an IBM Predoctoral Fellowship held during 1990–1992.

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DISCUSSION

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I would like to congratulate authors for a well written paper. As we proceed with micro/nanotribological research, it seems to me that we need to standardize the terms—"macro," "micro," "nano," and "atomic-scale." Authors use the terms "nano-friction" and "nano-wear," which are not consistent with that used by other researchers (Bhushan et al., 1994a, 1994b, 1994c, 1994d; Bhushan, 1995). In the discusser's opinion, following definitions are generally accepted.

1. Friction:
   (*a*) atomic: if the scan size is on the order of 1 nm × nm
   (*b*) nano: if the scan size is tens of nm times tens of nm
   (*c*) micro: if the scan size ranges from 1 μm × 1 μm and up.
2. Wear:
   (*a*) atomic: if the normal load is on the order of 1 nN
   (*b*) nano: if the normal load ranges tens of nN
   (*c*) micro: if the normal load ranges from 1 μN to tens of μN.
3. Indentation:
   (*a*) pico: if the indentation depth is on the order of 1 nN
   (*b*) nano: if the indentation depth is tens of nN
   (*c*) micro: if the indentation depth ranges from about 1 μN to tens of μN.

Based on these definitions, authors have reported "micro-friction" and "micro-wear" data. Incidentally, it is comforting to note that coefficient of friction values of magnetic disks reported by the authors are comparable to that by Bhushan et al. (1994a, 1994b), although very different measuring instruments are used by present authors and Bhushan et al.

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