**Introduction**

Perpendicular recording is expected to replace longitudinal recording in the near future. Thermal stability will become increasingly important as storage densities increase. We have done a comparative study of thermal stability of three high-anisotropy cobalt-based media. Presented here are the results of hysteresis measurements on three types of high anisotropy media and an attempt to determine the temperature dependence of $K_u V$ using the Sharrock formula.

**Energy Barrier Dependence on Field for Co/Pd Multilayer**

If the decay curves at different applied fields for a material can be shifted in ln(t) in intervals proportional to H to overlap, then the assumption can be made that the energy barriers are linear with field. Since $E = E_0(1-H/H_0)$, $n = 1$ in the Sharrock formula.


**Obtaining $H_0(T)$ from Coercivities**

- **Determining the Dependence of $K_u V$ on T**
  - Find $H_0(300)$ from the dynamic remanent coercivity using a Sharrock formula fit (blue curve).
  - Find $H_0(0)$ by extrapolating the regular coercivity at low temperatures (red curve).
  - Assume $H_0(T)$ is linear with respect to temperature.
  - Use the Sharrock formula with the calculated $H_0(T)$ and the $H_c(t)$ data to determine the value for $K_u V$ (or $E_0$).

**Future Work**

We may consider directly measuring the dynamic remanent coercivity at different temperatures, possibly using an alternating gradient magnetometer to make measurements at higher temperatures. Hard-axis in-plane hysteresis loops might also be measured at various temperatures to yield the value of the anisotropy. Demagnetization fields will be a factor in this type of measurement.

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