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Biaxial VSM Sensitivity and Crosstalk Measurement Dependence for Sxx(x,y,z), Sxy(x,y,z), and Sxz(x,y,z).[1] KOLTON DIECKOW, SARA BETH RAGAN, CHANDAN HOWLADER, BINOD D.C., WILHELMUS GEERTS, Texas State University, DEPARTMENT OF PHYSICS TEAM, MSEC TEAM — A biaxial Vibrating Sample Magnetometer (VSM) vibrates a magnetic sample inside a controlled magnetic field and uses the induced voltage across the pickup coils to determine the sample's magnetic moment. From the hysteresis graph, magnetic moment versus field, one determines the sample's magnetic moment and coercivity. The angle dependence of those properties are often used to determine the magnetic anisotropy. The conventional method for aligning the samples in a VSM is to use a preset field value and then manually center the sample based on the x-sensitivity, Sxx(x,y,z). Here we explore other aligning approaches for a modified Mallinson pickup coil configuration, including using the cross talk Sxy(x,y,z) and Sxz(x,y,z) functions. Preliminary model calculations show that this approach is less susceptible to small misalignment errors in the z-direction and a more accurate positioning of the sample is possible. Few studies have been conducted to examine this relation and how it can affect VSM measurements of samples. Step motors to control the sample position were installed on a MicroSense EZ9 biaxial VSM. A variety of measurements of the Sensitivity and Crosstalk were performed with changing angle, position and field strength, and will be discussed.

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