Our study reports measurements of resonant magneto-optical rotation (MOR) in rubidium vapor using D1 atomic transitions. In addition to experimental results, I will show results for MOR using a semi-classical theoretical model including the Doppler broadening effect. The results will be compared with our experiment to get a clear understanding of resonant MOR. MOR can be used to design a highly sensitive magnetometer, which can ultimately find applications in magnetic resonance imaging.