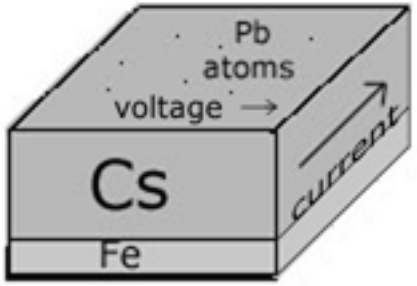
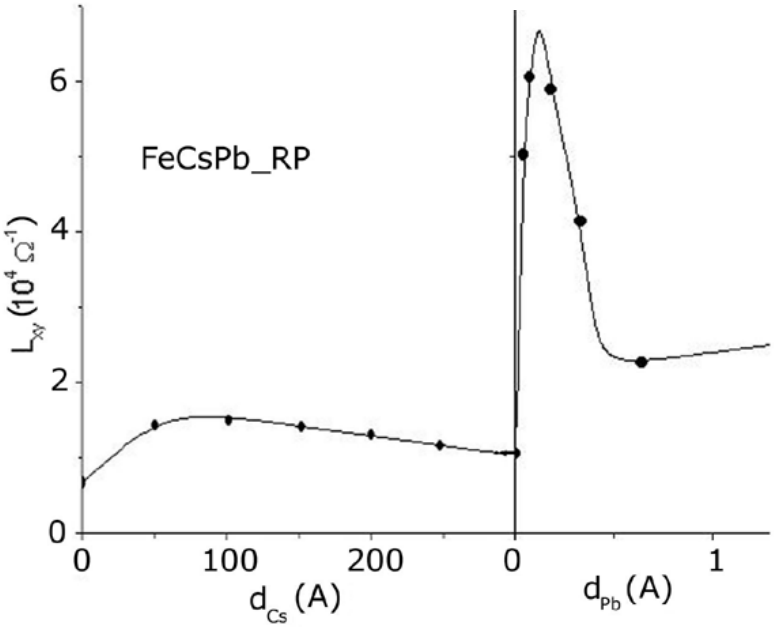
Study of the Alkali Metals, Gerd Bergmann, University of South.California, DMR-0124422

Spin currents and spintronics might replace some of today's electronic. A large spin current is produced in a Cs film which has an interface with a thin Fe film. This spin current is detected by a tiny number of Pb atoms on top of the Cs. The Pb detects the spin current by producing a large perpendicular voltage. The effect of 1/100 atomic layer of Pb is 10 times larger than that of 30 atomic layers of Fe.





Study of the Alkali Metals, Gerd Bergmann, University of South.California, DMR-0124422

Education:
Three graduate students work at the present time on the project. The PI also includes undergraduates in his research program. Two of the undergraduates received the first and second prizes during the USC undergraduate research symposiums. They gave several short talks at the March meeting of the APS. Several undergraduates are co-authors in publications in Phys. Rev. and similar journals.

Outreach:
A few years ago the PI initiated a summer lab course for high school students. The PI teaches in this course every year. The students learn to measure the density of air by using only a balloon, a plastic hose and a scale. Below the “Magdeburg sphere” is demonstrated.