Spin Dynamics of Charged Colloidal Quantum Dots\textsuperscript{1} N.P. STERN,  
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CA 93106 — Colloidal semiconductor quantum dots are promising structures for  
controlling spin phenomena because of their highly size- tunable physical properties,  
ease of manufacture, and nanosecond-scale spin lifetimes at room temperature. Re-  
cent experiments have succeeded in controlling the charging of the lowest electronic  
state of colloidal quantum dots\textsuperscript{2}. Here we use time-resolved Faraday rotation  
measurements in the Voigt geometry to investigate the spin dynamics of colloidal CdSe  
quantum dot films in both a charged and uncharged state at room temperature.  
The charging of the film is controlled by applying a voltage in an electrochemical  
cell and is confirmed by absorbance measurements. Significant changes in the spin  
precession are observed upon charging, reflecting the voltage- controlled electron  
occupation of the quantum dot states and filling of surface states.

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\textsuperscript{2}C. Wang, B. L. Wehrenberg, C. Y. Woo, and P. Guyot-Sionnest, \textit{J. Phys. Chem B}  

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