

PHYSIKALISCHES KOLLOQUIUM

Mittwoch, den 23.06.2010, um **15:30 Uhr**

Ort: Reichenhainer Str. 90; Neues Hörsaalgebäude, Raum: 2/N013



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History of the Stern-Gerlach Effect (SGE) and the Continuing Controversy Surrounding SGE of Free Electrons

“Space quantization” was demonstrated by the deflection in a nonuniform magnetic field of a beam of silver atoms 1921-1922 by Otto Stern and Walther Gerlach in Frankfurt. This experiment is now seen as a milestone in the development of quantum mechanics and in our understanding of quantum angular momentum. I will review the history of the Stern-Gerlach Effect (SGE), including the physics context and motivation. With the acceptance of the SGE experiment, came a wide variety of interpretations and speculations about meaning and modern physics. It was a relatively long time from reports of the experiment and the subsequent discovery of spin until these two phenomena were connected. Early speculation about SGE on free electrons was countered by Bohr with an uncertainty principle argument. Nevertheless, both theoretical and experimental studies continue on the possibility of free electron SGE by means of so-called “longitudinal SGE” or “continuous SGE”. I will discuss these ideas and their current status.

Alle Zuhörer sind ab 15:15 Uhr zum Kaffee vor dem Hörsaal eingeladen.