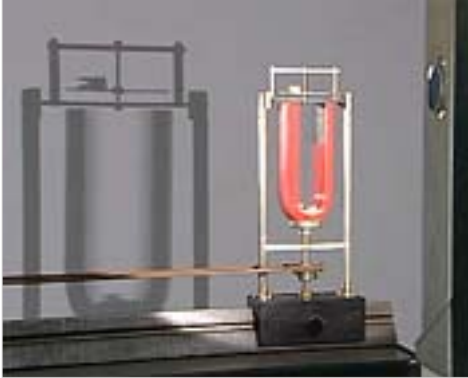


The Physics Experiments of Robert Wichard Pohl (1884–1976)

For decades, Robert Wichard Pohl taught his famous lectures of introductory physics in the old lecture hall of the Physics Institute at Goettingen University. These lectures became the foundation for three volumes entitled „Introduction into Physics“. Now, using Professor Pohl's original instruments in the same lecture hall in which he taught, this set of videos captures his extraordinary ingenuity and once more brings to life Pohl's great experimental skills.



Induction motor

Video title: Induction motor
Signature: C 14887
Series title: The Physics Experiments of Robert Wichard Pohl (1884-1976)
Abstract: Eddy currents induced in an aluminum disk in a moving inhomogeneous field tend to move the disk along with the field. This is the principle of the induction motor.
Source: Pohls Einführung in die Physik - Elektrizitätslehre und Optik. Lüders, Klaus; Pohl, Robert Otto (Hrsg.) 22. Aufl., 2006, Springer Berlin Heidelberg New York; p. 99
Key words: Inhomogeneous magnetic field, electric conductors, eddy currents, induction motors.

Goal of the experiment: Eddy currents create torques which can drive an induction motor.
Experimental setup: As a horseshoe magnet rotates around a vertical axis, it creates a rotating inhomogeneous magnetic field. Above the magnet is an aluminum disk free to rotate around a vertical axis. Its rotation is made visible with a flag which is attached to the disk.
Experiment: As the magnet rotates, it induces eddy currents in the disk, which in turn experience forces in the magnetic field. This is the principle of the induction motor. Note that the disk always has to rotate less rapidly than the magnet, since otherwise no torque would be created.

Scientific Contributors:

Klaus Lüders Department of Physics, Free University Berlin, Germany
Robert Otto Pohl Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, USA
Gustav Beuermann I. Physical Institute, University Goettingen, Germany
Konrad Samwer I. Physical Institute, University Goettingen, Germany

Editor: Walter Stickan
Camera: Kuno Lechner
Assistant: Gudrun Schwarz, Natalie Frick
Sound: Thomas Gerstenberg, Karl-Heinz Seack
Video Editing: Abbas Yousefpour
Technical Assistant: Joachim Feist

Production and Distribution: IWF Wissen und Medien gGmbH, <http://www.iwf.de>, © IWF Goettingen 2006

IWF Wissen und Medien gGmbH
Nonnenstieg 72, D-37075 Goettingen
Phone: +49 (0) 551 5024 0
www.iwf.de

 Leibniz
Gemeinschaft

IWF
WISSEN UND MEDIEN
KNOWLEDGE AND MEDIA