

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.



Paramagnetic matter

Video title: Paramagnetic matter
Signature: C 14890
Series title: The Physics Experiments of Robert Wichard Pohl (1884-1976)
Abstract: Paramagnetic matter gets pulled into regions of a large magnetic field. For the demonstration, liquid oxygen is poured into a shallow container placed in front of an electromagnet with non-parallel faces.
Source: Pohl's Einführung in die Physik - Elektrizitätslehre und Optik. Lüders, Klaus; Pohl, Robert Otto (Hrsg.) 22. Aufl., 2006, Springer Berlin Heidelberg New York; p. 189
Key words: paramagnetism, inhomogeneous magnetic field, liquid and gaseous oxygen.

Goal of the experiment: Liquid oxygen, and also cold gaseous oxygen, are pulled into regions of a large magnetic field, thereby displacing warmer air, which is only lightly paramagnetic.

Experimental setup: In front of an electromagnet, the upper pole of which is cut under an angle, liquid oxygen is filled into a shallow cardboard container. The experiment is observed in shadow projection.

Experiment: When the magnetic field is turned on briefly, some of liquid is pulled between the poles. The second time, the container is emptied. When the magnet is turned on again, only cold gas is pulled in. Watch the schlieren.

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