

# 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.



## Free fall

**Video title:** Free fall

**Signature:** C 14839

**Series title:** The Physics Experiments of Robert Wichard Pohl (1884-1976)

**Abstract:** The free fall is an example of a motion with constant, rectilinear or uniform acceleration. It will be recorded using a wooden bar which is falling freely.

**Source:** Pohls Einführung in die Physik - Mechanik, Akustik und Wärmelehre. Lüders, Klaus; Pohl, Robert Otto (Hrsg.) 19. Aufl., 2005, Springer Berlin Heidelberg New York; p. 15, 16

**Key words:** Mechanics, kinematics, tangential acceleration, free fall

**Goal of the experiment:** The free fall is an example of a motion with constant, rectilinear or uniform acceleration. It will be recorded using a wooden bar which is falling freely.

**Experimental setup:** A 50 cm long wooden bar with square cross section is covered with white blotting paper, and is suspended on a release mechanism. Time and displacement are recorded with the help of an ink jet emitted from an ink well spinning around a vertical axis with a frequency of 50 Hz.

**Experiment:** As soon as the ink well has reached its final frequency (3000/min), the bar is released. As the bar falls, the ink jet marks the distance through which it moves every 0.02 sec. From these quantities, the time-dependent velocity is obtained. It increases linearly with time. Within the experimental accuracy, a constant acceleration  $a = 9.8 \text{ m/sec}^2$  is obtained, the well known gravitational acceleration.

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