

Prof. Johannes Georg Bednorz
1987 Nobel Laureate
for Physics

Sunday 25 February 2007, 13:15 - 14:00 PM

Main Lecture Hall (room 100), Zarkuh Building
The Petroleum Institute



“The Excitement of Science – Dreaming Allowed”

Professor Johannes Georg Bednorz is a German physicist who, along with Karl Alex Muller, was awarded the 1987 Nobel Prize for Physics for their joint discovery of superconductivity in certain substances at temperatures higher than had previously been thought attainable.

Professor Bednorz was born in Neuenkirchen, North-Rhine Westphalia, in the Federal Republic of Germany on May 16, 1950. He graduated from the University of Münster in 1976 and earned his doctorate at the Swiss Federal Institute of Technology at Zürich in 1982. That same year he joined the IBM Zürich Research Laboratory, where he was recruited by Müller into the latter's studies of superconductivity.

In 1983 the two men began systematically testing newly developed ceramic materials known as oxides in the hope that such substances could act as superconductors. In their efforts Professor Bednorz was the experimenter in charge of the actual making and testing of the oxides. In 1986 the two men were experimenting with a particular class of metal oxide ceramics called perovskites. They surveyed hundreds of different oxide compounds. Working with ceramics of lanthanum, barium, copper and oxygen they found indications of superconductivity at 35 K, a startling 12 K above the old record for a superconductor. Soon researchers from around the world would be working with the new types of superconductors. In February of 1987, a perovskite ceramic material was found to superconduct at 90 K. This discovery was very significant because now it became possible to use liquid nitrogen as a coolant. Because these materials superconduct at significantly higher temperatures they are referred to as High Temperature Superconductors.