

Protactinium Encyclopedia Article

Protactinium

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Protactinium Encyclopedia Article.....	1
Contents.....	2
Protactinium.....	3

Protactinium

Protactinium is the next-to-last heaviest element, just preceding **uranium** (atomic number 92) in the **periodic table**. Protactinium's **atomic number** is 91, its atomic **mass** is 231.03588, and its chemical symbol is Pa.

Properties

All isotopes of protactinium are radioactive. Protactinium-231 is the most stable **isotope** with a half life of 3.276×10^4 years. The element is a bright shiny metal with a melting point of about 2,840°F (1,560°C) and a **density** of 15.37 grams per cubic centimeter. The element is fairly active and reacts with **oxygen**, the **halogens**, and **hydrogen**. Detailed properties of the element and its compounds have not been well studied, however.

Occurrence and Extraction

The amount of protactinium in the Earth's crust is too small to estimate accurately. The best estimate of its abundance is based on the fact that a ton of its most common ore, pitchblende, yields about 0.1 part per million of the element.

Discovery and Naming

Protactinium was discovered in 1913 by the German-American physicist Kasimir Fajans (1887-1975) and his colleague, O. H. Göhring. Fajans and Göhring were analyzing the mixture of substances found when isotopes of uranium undergo radioactive decay. They originally suggested the name of *brevium* for the element because of its short half life (1.175 minutes for protactinium-231), although the element's name was later changed to protoactinium. This name was suggested because the element produces **actinium** (atomic number 89) when it decays, making it "first actinium" or "protoactinium." The spelling of the name was later changed slightly to its current form

Uses

Neither protactinium nor its compounds have any commercial uses. The element is still very rare and sells for about \$300 per gram for research purposes.