

W Mesons Encyclopedia Article

W Mesons

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

W Mesons Encyclopedia Article.....	1
Contents.....	2
W Mesons.....	3

W Mesons

W mesons, or W bosons, are heavy charged particles that mediate the weak nuclear interaction. In standard high-energy units, they have a **mass** of 81 GeV. There are two varieties, the W^+ with charge $+e$, and its **antiparticle**, the W^- , with charge $-e$. The W bosons are some of the heaviest elementary particles, with a mass comparable to that of a krypton **nucleus**. They have a very short lifetime on order of 10^{-27} seconds, which requires that they be detected by looking for specific decay signatures in **particle detectors**. They were predicted to exist in the late 1960s and early 1970s by the unified **electroweak theory**, and were eventually detected in the mid-1980s at the large **electron positron** collider, LEP, at the European Center for Nuclear Research (CERN) near Geneva, Switzerland.