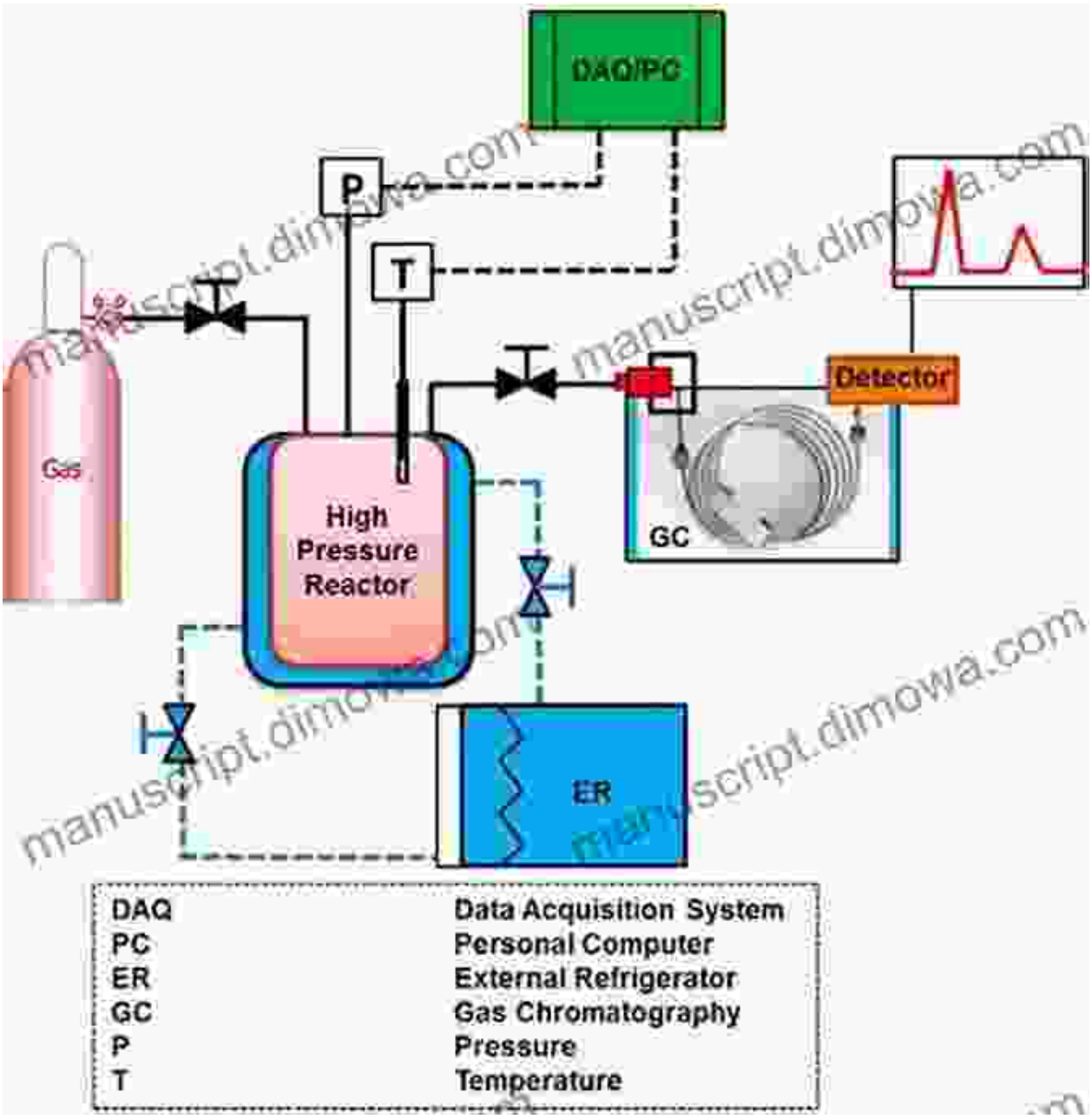
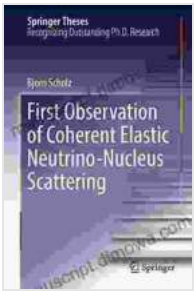
First Observation of Coherent Elastic Neutrino Nucleus Scattering



Neutrinos are among the most mysterious and elusive particles in the universe. They are subatomic particles that have no electric charge and very little mass. Neutrinos are created in nuclear reactions, such as those

that occur in the sun and other stars. They can also be created in particle accelerators.



First Observation of Coherent Elastic Neutrino-Nucleus Scattering (Springer Theses) by Giuseppe Arbia

★★★★★ 5 out of 5

Language	: English
File size	: 32374 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 220 pages

Neutrinos interact with matter very weakly, which makes them difficult to detect. However, in 2017, a team of scientists at the COHERENT experiment in Oak Ridge, Tennessee, made the first observation of coherent elastic neutrino-nucleus scattering (CEvNS). CEvNS is a process in which a neutrino scatters off of an atomic nucleus, causing the nucleus to recoil.

The observation of CEvNS was a major breakthrough in neutrino physics. It provided new insights into the fundamental properties of neutrinos and their interactions with matter. The COHERENT experiment is continuing to study CEvNS, and scientists are hopeful that it will lead to new discoveries about the nature of neutrinos.

This book presents the first observation of CEvNS from a high-intensity neutrino beam. The book includes a detailed description of the experimental setup, the data analysis, and the results of the observation.

The book also discusses the implications of the observation for neutrino physics and for our understanding of the universe.

Table of Contents

This book is a valuable resource for anyone who is interested in neutrino physics or in the fundamental properties of matter. It is also a fascinating read for anyone who is interested in the latest discoveries in science.

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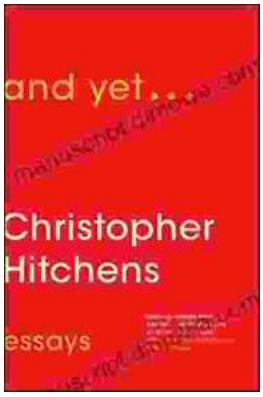

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