

Quasielastic Axial Vector Mass From Experiments On

High Energy Physics with Polarized Beams and Polarized Targets (Argonne, 1978)Journal of Science of the Hiroshima UniversityProceedings of the XVII International Conference on High Energy Physics, London, July 1974Energy Research AbstractsNeutrino Factories, Superbeams and BetabeamsCPT Conservation and Atmospheric Neutrinos in the MINOS Far DetectorSecond Aspen Winter Particle Physics ConferenceProceedings of the International Neutrino Conference Aachen 1976Nuclear PhysicsGovernment Reports Announcements & IndexNeutrinoProceedings of the 12th International Conference on Neutrino Physics and Astrophysics, Sendai, June 3-8, 1986NuInt04Neutrino Physics in Present and Future Kamioka Water-Čerenkov Detectors with Neutron TaggingNeutrino Physics, Second EditionSubatomic PhysicsJapanese Technical AbstractsNeutrino Interactions with Electrons and ProtonsDissertation Abstracts InternationalProceedings of the International Conference on High Energy PhysicsMeasurement of the Antineutrino Double-Differential Charged-Current Quasi-Elastic Scattering Cross Section at MINERvAINIS AtomindexProceedings of 11th International Conference on Neutrino Physics and Astrophysics at Nordkirchen, Near Dortmund, June 11-16, 1984Measurement of Neutrino Interactions and Three Flavor Neutrino Oscillations in the T2K ExperimentNuclear Beta Decays and Neutrino10th Conference on the Intersections of Particle and Nuclear PhysicsNeutrino Oscillation Searches with the Soudan 2 DetectorSouth African Journal of ScienceProceedingsJournal of ScienceERDA Energy Research AbstractsProceedings of the Royal Society. Section A, Mathematical and Physical ScienceNeutrino 81Physics BriefsNeutrino-Nucleus Interactions in the Few-GeV RegionNeutrino-nucleus Interactions in the Few GeV RegionThe Physics Associated with Neutrino MassesProceedings of the Fifth Workshop on Elementary-Particle Picture of the Universe, Izu, November 19-21, 1990Acta Physica PolonicaHigh Energy Physics Index

High Energy Physics with Polarized Beams and Polarized Targets (Argonne, 1978)

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Energy Research Abstracts

Neutrino Factories, Superbeams and Betabeams

CPT Conservation and Atmospheric Neutrinos in the MINOS Far Detector

Second Aspen Winter Particle Physics Conference

Proceedings of the International Neutrino Conference Aachen 1976

Nuclear Physics

Government Reports Announcements & Index

Neutrino

Proceedings of the 12th International Conference on Neutrino Physics and Astrophysics, Sendai, June 3-8, 1986

NuInt04

This thesis represents the first double differential measurement of quasi-elastic anti-neutrino scattering in the few GeV range--a region of substantial theoretical and experimental interest as it is the kinematic region where studies of charge-parity (CP) violation in the neutrino sector most require precise understanding of the differences between anti-neutrino and neutrino scatter. This dissertation also presents total antineutrino-scintillator quasi-elastic cross sections as a function of energy, which is then compared to measurements from previous experiments. Next-generation neutrino oscillation experiments, such as DUNE and Hyper-Kamiokande, hope to measure CP violation in the lepton sector. In order to do this, they must dramatically reduce their current levels of uncertainty, particularly those due to neutrino-nucleus interaction models. As CP violation is a measure of the difference between the oscillation properties of neutrinos and antineutrinos, data about how the less-studied antineutrinos interact is especially valuable. The measurement described herewith determines the nuclear and instrumental effects that must be understood to undertake precision neutrino physics. As well as being useful to help reduce oscillation experiments' uncertainty, this data can also be used to study the prevalence of various correlation and final-state interaction effects within the nucleus. In addition to being a substantial scientific advance, this thesis also serves as an outstanding introduction to the field of experimental neutrino physics for future students.

Neutrino Physics in Present and Future Kamioka

Water-Čerenkov Detectors with Neutron Tagging

Okayama University, Okayama, Japan, 6-11 August 2007

Neutrino Physics, Second Edition

A Conference is one thing, its Proceedings is another issue. The 1976 Neutrino Conference at Aachen met with friendly approval, within and beyond the brotherhood of neutrino physicists. The generally well informed "Frankfurter Allgemeine Zeitung" spoke of a "Sternstunde" of Science . . . And even without invoking the stars, we may register with some satisfaction that several important developments came to an end. "Charm is found!" - hailed Alvaro de Rujula the most spectacular event of the Conference. The organizers held this opinion even before, as is evidenced by the Conference badge: a little aluminum tetra hedron, symbolizing the four quarks, and fastened by a three-coloured string. In fact, the history of the discovery of charm goes a long way back, perhaps even back to the first CERN neutrino experiment in 1963/64, when indications of charged lepton pairs were recognized - long before charm was taken serious. Muon pairs were established by the Harvard-Pennsylvania-Wisconsin Group in 1974, and correctly inter preted in terms of charm. At the Paris Neutrino Meeting in 1975 the BNL event came, confirming the con nection with strangeness and suggesting charm production to occur at quite low energies.

Subatomic Physics

Japanese Technical Abstracts

NuInt07, the fifth in a series of international workshops, was held at Fermi National Accelerator Laboratory in Batavia, IL. It was the successful continuation of a series of workshops focused solely on the understanding and measurement of low energy neutrino-nucleus interactions. Neutrino cross sections in the few-GeV energy range are an important ingredient for neutrino oscillation experiments as well as being interesting in their own right. Such measurements and their accompanying theoretical calculations had not been updated for decades. The goal of this workshop series has been to remedy this situation by providing an environment where both experimentalists and theorists in nuclear and high energy physics can come together to review and discuss recent progress in neutrino-nucleus measurements and calculations.

Neutrino Interactions with Electrons and Protons

Dissertation Abstracts International

Proceedings of the International Conference on High Energy Physics

Measurement of the Antineutrino Double-Differential Charged-Current Quasi-Elastic Scattering Cross Section at MINERvA

INIS Atomindex

Proceedings of 11th International Conference on Neutrino Physics and Astrophysics at Nordkirchen, Near Dortmund, June 11-16, 1984

Measurement of Neutrino Interactions and Three Flavor Neutrino Oscillations in the T2K Experiment

CIPANP 2009 explores areas of common interest between nuclear physicists, high energy (particle) physicists and astrophysicists. These areas range from studies of the strong interactions that bind nuclei together to physics of the very early Universe and include such topics as neutrinos, hadron physics, spin physics, heavy ion physics, QCD and heavy flavor physics. The Conference papers include descriptions of searches for "new physics", phenomena that cannot be accounted for by current theories.

Nuclear Beta Decays and Neutrino

This book discusses the upgrade of the Super-Kamiokande (SK) detector, which consists in the addition of a salt of gadolinium into the detector's water, the goal being to endow it with a very high-efficiency ability to detect neutrons: the SuperK-Gd project. This will substantially improve the scientific value of the SK detector because, among others, neutron production is related to the matter-antimatter character of the interacting neutrino. In this book the authors develop several procedures for maximizing the impact of neutron tagging in various physics analyses involving a broad range of neutrino energy. They thoroughly study the impact of new backgrounds introduced by Gd in key physics analyses, most remarkably including the search for the Diffuse Supernova Neutrino Background. At GeV energies, the neutron tagging improvements are evaluated by performing a complete neutrino oscillation sensitivity study using atmospheric and long baseline neutrinos, with a focus on the neutrino mass hierarchy and the leptonic CP violation. In order to prove the relevance of neutron tagging with the available data, the authors apply the neutron-tagging tools developed here to the 4th phase of the SK detector, which is already capable of detecting a low fraction of the neutrons produced through hydrogen-neutron captures. A global oscillation analysis of the SK's atmospheric neutrino data is also conducted.

10th Conference on the Intersections of Particle and Nuclear Physics

Neutrino Oscillation Searches with the Soudan 2 Detector

South African Journal of Science

Proceedings

Journal of Science

The MINOS Far Detector is a 5400 ton iron calorimeter located at the Soudan state park in Soudan Minnesota. The MINOS far detector can observe atmospheric neutrinos and separate charge current $\{\nu\}_{\text{sub}}\{\mu\}$ and $\{\bar{\nu}\}_{\text{sub}}\{\mu\}$ interactions by using a 1.4 T magnetic field to identify the charge of the produced muon. The CPT theorem requires that neutrinos and anti-neutrinos oscillate in the same way. In a fiducial exposure of 5.0 kilo-ton years a total of 41 candidate neutrino events are observed with an expectation of $53.1 \{\pm\} 7.6(\text{system.}) \{\pm\} 7.2(\text{stat.})$ unoscillated events or $31.6 \{\pm\} 4.7(\text{system.}) \{\pm\} 5.6(\text{stat.})$ events with $\{\Delta\}m\{\text{sup } 2\} = 2.4 \times 10\{\text{sup } -3\} \text{eV}\{\text{sup } 2\}$, $\sin\{\text{sup } 2\}(2\{\text{theta}\}) = 1.0$ as oscillation parameters. These include 28 events which can have their charge identified with high confidence. These 28 events consist of 18 events consistent with being produced by $\{\nu\}_{\text{sub}}\{\mu\}$ and 10 events being consistent with being produced by $\{\bar{\nu}\}_{\text{sub}}\{\mu\}$. No evidence of CPT violation is observed.

ERDA Energy Research Abstracts

Proceedings of the Royal Society. Section A, Mathematical and Physical Science

Intermediate bosons; Neutrino mass and mixing; Astrophysics and cosmology; Neutral current interactions; Proton decay experiments; Charged current interactions; Beam dump experiments. Session on future detectors; Rapporteur talks.

Neutrino 81

Physics Briefs

Neutrino-Nucleus Interactions in the Few-GeV Region

Includes all works deriving from DOE, other related government-sponsored information and foreign nonnuclear information.

Neutrino-nucleus Interactions in the Few GeV Region

An explanation of the basic concepts of theoretical and experimental nuclear and particle physics.

The Physics Associated with Neutrino Masses

Proceedings of the Fifth Workshop on Elementary-Particle Picture of the Universe, Izu, November 19-21, 1990

This book is based on the author's work in the T2K long-baseline neutrino oscillation experiment, in which neutrinos are generated by a proton beam and are detected by near and far neutrino detectors. In order to achieve the precise measurement of the neutrino oscillation, an accurate understanding of the neutrino beam and the neutrino interaction is essential. Thus, the author measured the neutrino beam properties and the neutrino interaction cross sections using a near neutrino detector called INGRID and promoted a better understanding of them. Then, the author performed a neutrino oscillation analysis using the neutrino beam and neutrino interaction models verified by the INGRID measurements. As a result, some values of the neutrino CP phase are disfavored at the 90% confidence level. If the measurement precision is further improved, we may be able to discover the finite CP phase which involves the CP violation. Thus, this result is an important step towards the discovery of CP violation in the lepton sector, which may be the key to understanding the origin of the matter-antimatter asymmetry in the universe.

Acta Physica Polonica

When Kai Zuber's pioneering text on neutrinos was published in 2003, the author correctly predicted that the field would see tremendous growth in the immediate future. In that book, Professor Zuber provided a comprehensive self-contained examination of neutrinos, covering their research history and theory, as well as their application to particle physics, astrophysics, nuclear physics, and the broad reach of cosmology; but now to be truly comprehensive and accurate, the field's seminal reference needs to be revised and expanded to include the latest research, conclusions, and implications. Revised as needed to be equal to the research of today, *Neutrino Physics, Second Edition* delves into neutrino cross sections, mass measurements, double beta decay, solar neutrinos, neutrinos from supernovae, and high energy neutrinos, as well as new experimental results in the context of theoretical models. It also provides entirely new discussion on: Resolution of the solar neutrino problem The first real-time measurement of solar neutrinos below 1 MeV Geoneutrinos Long baseline accelerator experiments Written to be accessible to readers from diverse backgrounds, this edition, like the first, provides both an introduction to the field as well as the information needed by those looking to make their own contribution to it. And like the first edition, it whets the researcher's appetite, going beyond certainty to pose those questions that still need answers.

High Energy Physics Index

Market: Researchers and graduate students in high energy physics, physics historians. This book contains 13 papers that reflect the development of neutrino interactions with the electrons and protons in a fixed-target experiment that, beginning in 1980, grew out of the formal collaboration in high energy physics between Japanese and American institutions. These experiments were crucial to the merger of quantum electrodynamics and quantum weak dynamics, the foundation of electroweak theory today.

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