

Springer

1st  
edition1st ed. 2016, XIII, 199 p.  
156 illus., 12 illus. in color.**Printed book**

Hardcover

**Printed book**

Hardcover

ISBN 978-4-431-55835-4

£ 99,99 | CHF 130,00 | 109,99 € |  
120,99 € (A) | 117,69 € (D)

Available

**Discount group**

Science (SC)

**Product category**

Monograph

**Series**

Springer Theses

**Other renditions**

Softcover

ISBN 978-4-431-56707-3

Physics : Elementary Particles, Quantum Field Theory

Ieki, Kei, Kyoto University, Kyoto, Japan

# Observation of $\nu_{\mu} \rightarrow \nu_e$ Oscillation in the T2K Experiment

- Nominated as an outstanding contribution by Kyoto University's Physics Department in 2013
- Provides a detailed description of the fine-grained detector
- Summarizes the details of the complicated neutrino oscillation analysis method, including the prediction of neutrino flux and cross section

In this thesis the author contributes to the analysis of neutrino beam data collected between 2010 and 2013 to identify events at the Super-Kamiokande detector. In particular, the author improves the pion–nucleus interaction uncertainty, which is one of the dominant systematic error sources in T2K neutrino oscillation measurement. In the thesis, the measurement of oscillation in the T2K (Tokai to Kamioka) experiment is presented and a new constraint on CP is obtained. This measurement and the analysis establish, at greater than 5 significance, the observation of oscillation for the first time in the world. Combining the T2K oscillation measurement with the latest findings on oscillation parameters including the world average value of  $\theta_{13}$  from reactor experiments, the constraint on the value of  $\delta_{CP}$  at the 90% confidence level is obtained. This constraint on  $\delta_{CP}$  is an important step towards the discovery of CP violation in the lepton sector.

Order online at [springer.com/booksellers](http://springer.com/booksellers)

Springer Nature Customer Service Center GmbH

Customer Service

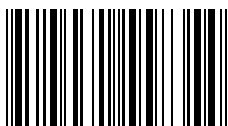
Tiergartenstrasse 15-17

69121 Heidelberg

Germany

T: +49 (0)6221 345-4301

row-booksellers@springernature.com



ISBN 978-4-431-55835-4 / BIC: PHQ / SPRINGER NATURE: SCP23029

Prices and other details are subject to change without notice. All errors and omissions excepted. Americas: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add \$5.00 for shipping one book and \$ 1.00 for each additional book. Outside the US and Canada add \$ 10.00 for first book, \$5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.

Part of **SPRINGER NATURE**