

FOREWORD

RCCN International Workshop on Sub-dominant Oscillation Effects in Atmospheric Neutrino Experiments was held in ICRR in Kashiwa, Japan from December 9th to December 11th, 2004.

Atmospheric neutrino experiments have been playing very important role to study $\nu_\mu \rightarrow \nu_\tau$ oscillations. The zenith angle and energy dependent deficit, or more recently the L/E dependent deficit, of atmospheric muon neutrinos has been used to constrain the neutrino oscillation parameters. As a natural extension of the present $\nu_\mu \rightarrow \nu_\tau$ oscillation studies, atmospheric neutrino experiments should study three flavor oscillation effects. One is the effects driven by θ_{13} and the other is the ones driven by the solar oscillation terms (θ_{12} and Δm_{12}^2). Especially, thanks to the diameter of the Earth, atmospheric neutrino experiments are sensitive to the solar neutrino oscillation terms. If the solar neutrino oscillation effect is observed, it is possible to get unique information, such as a discrimination of the octant of θ_{23} for non-maximal $\sin^2 2\theta_{23}$.

It is predicted that the effect of solar neutrino oscillations on atmospheric neutrino experiments is relatively small, and improvements of the accuracy of our understanding of the flux and the neutrino interaction cross sections are required. These topics were discussed in detail in this workshop. These Proceedings summarize our discussion at the workshop. We hope that these Proceedings will be useful for future studies of atmospheric neutrinos.

Finally, we would like to thank all the participants who enthusiastically contributed to the success of the Workshop.

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On behalf of the Workshop Organizing Members