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Review of Recent Neutrino Oscillation Results

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Neutrino oscillations can be parameterized in terms of four parameters called θ_{12}, θ_{23}, θ_{13} and $\delta_{\rm CP}$. Non-zero values of the angles θ_{13} and $\delta_{\rm CP}$ could explain the profound mystery of why the observable universe only has matter and little anti-matter. Until recently only weak limits existed on θ_{13} and nothing was known about $\delta_{\rm CP}$. But in the last two years there has been a dramatic improvement in our understanding of θ_{13}. This comes from neutrino oscillation results from the long baseline experiment T2K in Tokai, Japan, which observes the neutrino appearance mode $\nu_\mu \rightarrow \nu_{\rm e}$ and from reactor experiments, Daya Bay, Double CHOOZ, and RENO, which measure the neutrino disappearance oscillation mode $\nu_{\rm e} \rightarrow \nu_{\rm e}$ in reactors operating in China, France, and Korea, respectively. These results now provide compelling evidence that θ_{13} is about 9 degrees. In this talk, the puzzling neutrino properties and the theory of neutrino oscillation mixing will be briefly introduced. These new experimental results will be reviewed and their impact on neutrino physics will be discussed.