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Reactor Antineutrinos: From Confusion to Clarity[1]

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Antineutrinos emitted by nuclear reactors have been a powerful tool for particle physics, demonstrating the existence of these weakly-interacting particles as well as their flavor oscillation. Despite these successes, our understanding of the total flux and energy spectra of reactor antineutrinos has been fraught with problems. I will give a brief overview of the unexpected developments in this field, and discuss upcoming measurements of antineutrinos, beta decays, and nuclear fission which are relevant to these questions. These measurements are expected to clarify many currently murky issues, including the hypothetical oscillation of reactor antineutrinos to sterile states. The results should also provide a unique perspective into the nuclear physics of fission reactors.

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