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State of the Art Reactor Antineutrino Spectrum Calculations A.A. SONZOGNI, T.D. JOHNSON, E.A. MCCUTCHAN, National Nuclear Data Center, Brookhaven National Laboratory — Nuclear reactors are copious producers of anti-neutrinos, with fluxes of around 10^{20} anti-neutrinos/second, a feature which has been exploited by experiments to measured neutrino properties. We have calculated the anti-neutrino spectrum for the neutron induced fission of actinide targets, mainly 235 U, 238 U and 239 Pu. As an input we have used the recently released ENDF/B-VII.1 library, which includes the latest decay data, Q-values and theoretical calculations. The electron spectra from beta minus decay were benchmarked against different measurements. While several hundred fission fragments are produced, it is found that at the energies relevant for the $\bar{\nu} + p \rightarrow n + e^+$ reaction, fewer than 50 nuclides contribute more than 70 % of the flux. Simple estimates of the flux uncertainty and ways to improve our knowledge of the flux will be presented.

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