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Daniel John Fresen* (daniel.fresen@yale.edu). *A non-asymptotic central limit theorem.* Preliminary report.

We consider log-concave probability measures on Euclidean space of dimension at least two, with various regularity assumptions such as a smooth density function and independent coordinates. Another, more technical condition is imposed, that can be considered relatively mild. We show that the restriction of the density to an affine subspace of lower dimension far away from the origin tends to resemble the standard normal distribution, when appropriately normalized, provided the subspace is not parallel to a coordinate subspace. This phenomenon does not require high dimensionality, and works in both high and low dimensions. It can be thought of as a non-asymptotic counterpart to the classical central limit theorem, where the number of summands need not be large. (Received September 03, 2012)