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Stability of Perturbed Almost Periodic Ordinary Differential Equations. Preliminary report.

We will discuss the preservation of stability of systems of almost periodic differential equations under perturbations. Consider the following systems: (N) $x' = f(t, x)$ and (P) $x' = f(t, x) + g(t, x)$, where $f(t, x)$ is almost periodic in t , $f(t, 0) = 0$, and $x = 0$ is uniformly asymptotically stable for (N). We use techniques originated essentially by H. Okamura to establish conditions on f and g for the origin to be integrally and totally asymptotically stable. Results are also obtained for special cases of (N) such as linear and periodic equations. (Received September 12, 2008)