Hamaya, Yoshihiro
Stability property for an integrodifferential equation. (English) Zbl 0791.45003

The paper discusses the relationship between stability under disturbances from the hull and total stability is an almost periodic system of integro-differential equations of the form

\[ x'(t) = f(t, x(t)) + \int_{-\infty}^{0} F(t, s, x(t+s), x(t)) \, ds, \]

where \( f : \mathbb{R} \times \mathbb{R}^n \to \mathbb{R}^n \) is continuous and almost periodic in \( t \) uniformly for \( x \in \mathbb{R}^n \), and \( F(t, s, x, y) \) is continuous on \( \mathbb{R} \times (-\infty, 0] \times \mathbb{R}^n \times \mathbb{R}^n \) and almost periodic in \( t \) uniformly for \( (s, x, y) \in (-\infty, 0] \times \mathbb{R}^n \times \mathbb{R}^n \).

The author also shows that for a periodic integrodifferential equation, uniform stability and stability under disturbances from the hull are equivalent.

Reviewer: Wang Zhicheng (Changsha)

MSC:

- 45J05 Integro-ordinary differential equations
- 45M10 Stability theory for integral equations
- 45G10 Other nonlinear integral equations

Keywords:

- stability under disturbances from the hull; total stability; almost periodic system; periodic integrodifferential equation; uniform stability