

**Cruz, César; Nijmeijer, Henk**

**Synchronization through extended Kalman filtering.** (English) Zbl 0927.93053

Nijmeijer, Henk (ed.) et al., New directions in nonlinear observer design. International workshop, Geiranger Fjord, Norway, June 24–26, 1999. London: Springer. Lect. Notes Control Inf. Sci. 244, 469-490 (1999).

A nonlinear discrete-time system of the form  $x(k+1) = f(x(k)) + w(k)$  with linear observations  $y(k) = Hx(k) + v(k)$  is considered. The estimate  $\hat{x}(k)$  of the state  $x(k)$  is produced by the extended Kalman filter which consists of using the classical Kalman filter equations for the first-order approximation of the nonlinear system about the last estimate. The authors investigate the error  $e(k) = x(k) - \hat{x}(k)$  and establish conditions for its boundedness for large  $k$ .

For the entire collection see [\[Zbl 0915.00063\]](#).

Reviewer: [Grigori Milstein \(Ekaterinburg\)](#)

**MSC:**

- [93E11](#) Filtering in stochastic control theory
- [93C10](#) Nonlinear systems in control theory
- [93C55](#) Discrete-time control/observation systems

Cited in **3** Documents

**Keywords:**

[nonlinear filtering](#); [filter stability](#); [discrete-time system](#); [extended Kalman filter](#)