

## ON THE SYNTHESIS OF THE MAPPED STATE SPACE ACTIVE FILTERS

BY

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**Abstract.** An active filters' synthesis technique using the state space equations is proposed; this technique can be used for a new active filters class, obtained by state-space variables transformations, named *Mapped State Space* (MSS) filters. The presented technique is then applied for the particular case of log-domain type, externally linear and internally nonlinear (ELIN) active filters' synthesis. For these filters is described a general method to find a dc equilibrium solution, required for their practical implementation. Finally, the presented technique is exemplified for a second order log-domain type ELIN band-pass active filter (BPF) synthesis.

**Key words:** Active filters; MSS, ELIN, ESS, PSS; log-domain; state space equations; synthesis.