

**Fuller, A. T.; Jury, E. I.****On aperiodicity theorems.** (English) Zbl 1012.93029

Int. J. Control 74, No. 5, 425-431 (2001).

This well-written paper describes a set of necessary and sufficient conditions for aperiodicity of a polynomial, i.e. conditions for the roots of a real polynomial to be real, simple, and confined to a given interval on the real axis. The conditions are (1) a positivity condition on an auxiliary polynomial along the specified real axis interval; (2) alternating sign conditions on the values taken by the polynomial and its derivatives at the bounds of the interval. Previous work on the topic is surveyed, and some applications in linear systems control theory are mentioned in the introduction.

Reviewer: [Didier Henrion \(Toulouse\)](#)**MSC:**[93C05](#) Linear systems in control theory[12D10](#) Polynomials in real and complex fields: location of zeros (algebraic theorems)[26C10](#) Real polynomials: location of zerosCited in **2** Documents**Keywords:**

linear systems; aperiodicity of a polynomial; location of zeros; positivity condition; alternating sign conditions

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