

REPRESENTATIONS OF CHAOTIC SYSTEMS DYNAMICS, WITH APPLICATION IN TECHNOLOGICAL SYSTEM STABILITY CONTROL

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Abstract: By starting from accepting that the cutting process can be considered as having chaotic dynamics, the purpose of this paper is to analyze the possibility of identifying the technological system stability by comparing Poincaré maps of the measured cutting force time series to a set of patterns, characterizing the different states of the system. There are also presented an algorithm and a dedicated soft, conceived in order to enable an easier representation of phase plane maps, in the case of bi-dimensional systems having chaotic dynamics.

Key words: chaotic system, cutting process, Poincaré map, stability control, Hénon model.