عنوان مقاله:

Modeling and identification of nonlinear behavior of friction vibratory separators using iwan model

محل انتشار:

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خلاصه مقاله:

In some friction vibratory separators, the variations in the vertical forces and slip speed affect the damping rate and behavior of microslip and macroslip friction forces, leading to asymmetry in the force-displacement hysteresis loop diagram. High flexibility in modeling hysteresis loops and physical interpreting of its parameters is the advantage of the Iwan model. However, the effects of slip speed and changed vertical forces on the friction surfaces have not been included in the model. The present study aims to develop the generalized Iwan model by including the effects of slip speed and changed vertical forces on the friction surfaces for modeling the vibratory behavior of friction separators with asymmetric hysteresis. In experimental set-up, a friction separator made by passing a compressed polymer rope through spring is subjected to identification tests at different stimulation frequencies and amplitudes. Finally, the generalized Iwan model is updated to match its output with the results from tests using the genetic algorithm by optimizing the parameters

کلمات کلیدی:

Microslip, Iwan model, Separator, Hysteresis loop