

A SIMULATION TOOL IN TIME DOMAIN FOR BRASSINESS STUDIES

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ABSTRACT

A time-domain numerical model of brass instrument sound production is proposed as a tool to predict their brassiness, defined as the rate of spectral enrichment with increasing dynamic level. It is based on generalized Burger's equations dedicated to weakly nonlinear wave propagation in nonuniform ducts. The relevance of the present tool is evaluated by carrying out simulations over distances longer than typical shock formation distances, and by doing preliminary simulations of periodic regimes in different brass bore geometries.