

ACOUSTICS2008/1184
the jew's harp, experimental study and modelling

Charles Besnainou^a, Joel Frelat^b and Adrien Mamou-Mani^b

^aInstitut Jean le Rond d'Alembert, Laboratoire d'Acoustique Musicale, 11, rue de Lourmel, 75015 Paris, France

^bInstitut Jean le Rond d'Alembert, Lab. d'Acoustique Musicale, 11, rue de Lourmel, 75015 Paris, France

Under its archaic aspects jew's harp is a musical instrument highly subtle. Indeed, a metal blade (or wooden) attached to a rigid frame put into vibration by the musician, and coupled to the buccal resonator allow nice tune. The skilt of the jew's harp focuses on the conformations of this cavity whose function is to select the right components of the vibration to be amplify.

In our study, we have modelled a playing technique which involves blowing during the blade vibrates. In the lake of breath, the spectre of sound produced by the blade is odd, i.e. it includes at first approximation odd components $(n + 1)$ multiple the fundamental. Whereas when the musician adds breath the spectrum turns into a spectrum containing all components of basic integer multiples (n) .

This work takes place in the context of studies of vibrating systems under prestress and loaded. In that case the load, and the prestress are generated by the musician breath by bending the blade

On the other hand, experimental studies are compare with the model results.