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PHYSICAL MODELING OF FLAGEOLET TONES IN STRING INSTRUMENTS (MonPmOR3)

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Abstract : This paper introduces a physical modeling method for synthesizing flageolet tones played on string instruments. Flageolet tones are generated when a player gently damps the vibrating string at a certain location, so that only those modes that have a nodal point at the damping location remain ringing. A physical model of the spatially damped string is implemented using a wave digital resistor connected to a digital waveguide string. Also, a commuted waveguide version is derived and analyzed. The model is able to realistically synthesize flageolet tones with both static and time−varying damping parameters. Synthesis results are presented and analyzed.

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