

## **MEASUREMENTS ON HISTORIC PIANOS**

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### **ABSTRACT**

Measurements were conducted on three historic pianos by Johann Baptist Streicher: one from 1836, and two from 1851 (with two different piano actions). Another series of measurements was performed on a copy of a typical 1800/05 piano by Nanette Streicher, made by Gert Hecher. These measurements were focused on the vibrations of strings and soundboard, and on the sound pressure, for isolated notes with different striking forces. Other data were collected, relative to the geometry and design of the soundboard, and on the string scaling, for each piano. The ultimate objective of this campaign is to establish links between physical parameters of the pianos and their tone quality. To achieve this, the method consists first to derive the appropriate parameters from time and spectral analysis of the various measured signals, in conjunction with the geometrical and material data. In some cases, these last data are not available and some realistic assumptions must be made. In a second step, simulations of some piano tones relative to the four instruments are conducted and compared to the original ones. These simulations are made with the help of a numerical model previously developed by Juliette Chabassier. The presentation will start with a short history of the measured pianos. In a second part, preliminary results of measurements and comparisons with simulations will be discussed.