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**Measuring and Modeling Violin Sound Radiation for Sound  
Equalization**

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During a performance a violin is put into vibration and this vibration is radiated to the air. Depending on the distance and direction of the listener, he perceives a slightly different sound. Sound radiation at each point in the space is determined by the impulse response or transfer function between vibration of the violin and sound pressure at that point.

There is variety of methodologies to obtain acoustic impulse responses of violins. They differ mainly in the way of exciting the violin, the point of excitation, the position where the acoustic response is measured and how excitation and response signals are deconvolved.

In this work we measure violin vibration with a bridge pickup and we 1) propose a method to calculate the transfer function between signals from the bridge pickup and a microphone, 2) use a 3D motion tracker to get the position of the microphone respect to the violin so that we can calculate the response for different directions and distances and 3) we model sound radiation as a "reference" impulse response and a parametric filter whose response depends on distance and orientation with respect to the "reference" position.