

HABILITATION

Fachbereich Mathematik und Informatik

EINLADUNG

zum Habilitationsvortrag

Im Rahmen ihres Habilitationsverfahrens wird

Frau Dr. Isabelle Anne Nicole Schneider

am **Donnerstag, d. 25. Mai 2023**

um **16:00 Uhr c.t.** im **Hörsaal 001, Arnimallee 3, 14195 Berlin**

einen Vortrag über das Thema:

From Pythagoras to Differential Equations: Uncovering the Mysteries of Musical Sound

halten.

Der Vortrag wird ca. 45 Minuten dauern (Zusammenfassung s.u.).

Die Universitätsöffentlichkeit ist dazu herzlich eingeladen.

gez. Prof. Dr. G. Rothe

Dekan des FB Mathematik und Informatik

Abstract: For over two millennia, the relationship between the frequency of a vibrating string and its length has been studied, starting with Pythagoras' legendary experiments with the monochord. Many renowned scientists and mathematicians, including Mersenne, Bernoulli, Euler, Lagrange, d'Alembert, and Helmholtz, have conducted their own investigations on this subject. Despite the fact that the linear wave equation is frequently employed to model the sound spectrum of musical instruments, it does not truly reproduce the entire sound spectrum. In this talk, we will embark on a search for the flageolet harmonics and compare our mathematical findings to what we hear during live musical experiments. We will investigate recent models for string and woodwind instruments that rely on partial and delay differential equations, and we will uncover intriguing phenomena such as stiff damping and hysteresis.