

# Introduction to Modal Tuning

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- É Guitars radiate sound from their vibrating parts, mainly the top plate
- É If a guitar top vibrates in a different way, it produces a different sound
- É The different ways a guitar top vibrates are called modes
- É If the modes are tuned to resonate at particular frequencies with particular amplitudes, we can shape the way a guitar sounds
- É In this workshop we explore the theory and practice of mode tuning to help you achieve the sound you want from your guitar

## Course Content

- How strings drive your guitar
- Visualising and understanding modes of vibration
- Relating modes of vibration to guitar frequency response curves
- Measuring frequency response curves
- Relating frequency response curves to generic guitar types (classical, flamenco, steel string rhythm, steel string finger picking)
- Introduction to theory of modal vibrations
- Mechanical impedance and admittance
- Targeting the right-modal frequencies and avoiding the wrong ones
- Requirements of a guitar as a static and dynamic structure
- Measuring material properties so that you can make the best of the wood you have rather than wishing for the wood you would like
- Bracing schemes for backs and tops
- Practical tuning of guitar modes: Moving from as built to design
- Virtual design and build: When to use each technique in the creation process