

# What makes a good instrument and how does it affect sound?



Stellenbosch

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**31 March - 11 April 2025**  
**ONLINE | SELF STUDY**  
**R550 course fee**



**Martina Meincken**

I obtained my MSc in Physics from Konstanz, Germany, in 1998 and then completed a six-month internship at the National Accelerator Centre in South Africa. Shifting to Polymer Science, I earned a PhD in 2002. After roles as a postdoc and researcher, I joined the Department of Forest & Wood Science in 2006, becoming an Associate Professor in 2016. My research focuses on Wood Physics & Drying, Wood Plastic Composites, and wood-based materials.

Have you ever wondered why some instruments sound just great, and others not so much? Or why old instruments, like Stradivaris, tend to sound better than many modern ones? The answer can be found in the material, from which the instrument is made and how well it resonates sound. This course is aimed at musicians who want to understand their instrument better.

#### The topics covered include:

- 1) Physics of sound
- 2) Relevant wood properties
- 3) Acoustical properties of wood
- 4) Determination of these properties
- 5) Classification of tonewoods (for all wooden Instruments)
- 6) The process of making string instruments
- 7) How to define sound quality in instruments

This course is unique in that it provides a bridge between music studies and materials science studies with a focus on wooden instruments. Often musicians do not know how their instruments were built and how the materials affect the sound. Wood scientists, on the other hand, typically focus on larger applications (such as industrial building) rather than the very fine art of making instruments.

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