

Physics Seminar

Engineering of the Katana

Motoaki Honda
UNC Physics

**Friday
April 9
3:30pm
Ross 0220**

The Katana is a deadly sword that was developed over 1000 years ago. By experience and through trial and error, Katanakazi (the Japanese word for swordsmith) discovered methods to make high-quality steel and used sophisticated engineering to fabricate Katana. Making a Katana starts with using the right kind of steel. Instead of using pure iron ore, engineers used refined iron sand, which they put in a clay furnace to further refine the iron. Once "good steel" is obtained, the swordsmith separates it into four different parts that will become the blade, each part having a different hardness and elasticity. This talk will outline the set of steps (called Tsuchi-oki) and the physics behind the process that must be completed to create a perfect sword.

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Supersonic Splashes

Rachel Bennet
UNC Physics

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It's faster than a speeding bullet... faster than a speeding jet...

Faster than a speeding... splash?

The classic pebble splash has long been a topic of fascination for high-speed photographers and small children alike. But the next phase of pebble splash study isn't about the mere symmetric beauty of the phenomenon. Research from Europe has revealed new information about what happens to the air inside the splash cavity as the cavity collapses. Can it really break the speed of sound? I will discuss the physics that led scientists to ask this question, and then present the results of their research.