Physikalisches Kolloquium

Universität Konstanz

Festkolloquium/Public Talk
SFB 767 Final Symposium
Controlled Nanosystems

Tue 19.11.19
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Konzil Konstanz

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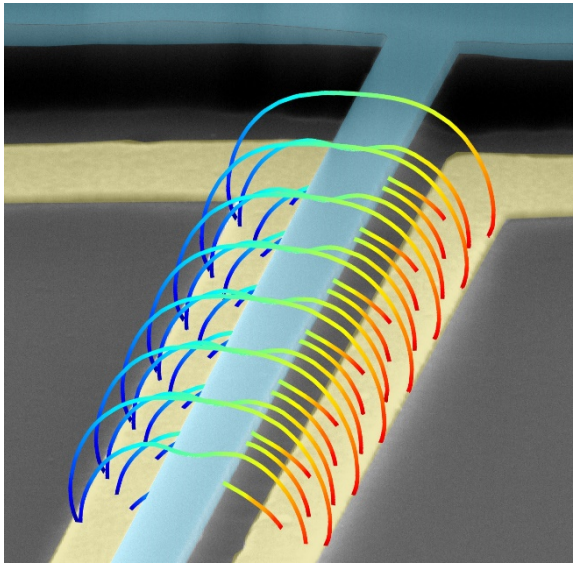
Controlling Nanomechanical Systems: Back to the Future



Vibrating guitar strings, a thousand time smaller than a human hair, have fascinating physical properties. Unlike their macroscopic counterpart, these so-called nanomechanical systems have quality factors of half a million: Once excited, the vibration takes 500,000 cycles to decay.
The prospect of controlling the dynamics of these nanostrings opens the pathway to coherently controlling their motion or to a deeper understanding of coupled modes and nonlinear phenomena. Here I will review the development of dielectric control of nanostring resonators, which provides a toolbox to drive and detect their vibrational modes but also to tune their eigenfrequencies or to hybridize with other modes. I will also have a glance at the future, where nanostring control is taken to the next level, and nonlinear nanostrings are employed to modify the fluctuation spectrum or to produce a frequency comb.