



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Institut für Physik Physikalisches Kolloquium



Mittwoch, 17.05.2017, um 16:00 Uhr

Ort: Reichenhainer Str. 90;
Zentrales Hörsaal- und Seminargebäude,
Raum 2/N013

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Nanodevices for Bio-inspired Computing

In the last few years, Artificial Intelligence has made striking progress, and now defeating humans at subtle games such as Go, and even Poker. However, these algorithms are running on traditional computers that have a radically different architecture than the biological neural networks. This considerably slows them down and requires massive amounts of electricity, sometimes what the brain typically needs to function. This energy dissipation is a major issue, but it also sets a limit to the size of neural networks that can be built. There we need to rethink the way we compute, and build hardware inspired by the structure of the brain. This is a challenge. Indeed, contrarily to current computers, the brain is a huge parallel network closely entangling memory and processing.

In this talk, I will show that, for building the neuromorphic chips, we need to emulate functionalities of synapses and neurons at the nanoscale. Recent developments of memristive nano-synapses and oscillating nano-neurons, the physical mechanisms at stake, and the challenges in terms of materials. Finally, I will present the first achievements of neuromorphic computing with novel nanodevices and the fascinating perspectives of this emerging field.

Alle Zuhörer sind ab 15:45 zu Kaffee und Tee vor dem Hörsaal eingeladen.

Informationen zum Vortrag erteilt:
Prof. Dr. Olav Hellwig, Tel.: 0371 531-30521



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