

Electronic Weekly

Physicists get in a spin over electrons

A TEAM OF UNIVERSITY of Arkansas physicists is to study spintronics, the science of exploiting the spin, or magnetic properties, of electrons.

"One of the big problems today is that the current means to make [electronic] devices smaller will be used up in 10 to 20 years," said Vincent LaBella, assistant professor of physics.

Spintronics is an infant science. According to the university, researchers have been unable even to transfer electrons from metal contacts to semiconductor surfaces without disrupting spin orientation.

"There's a lot unknown as to what is going on here," LaBella said.

Using scanning tunnelling microscopy (STM), the team will study ways to inject electrons into specially-made surfaces at varying temperatures with the aim of controlling spin orientation within the substance.

Information gained will allow a picture of the local electronic and electromagnetic field properties of the surface to be built, helping to identify the theoretical mechanisms responsible for electron spin disruption.