

## **Surprises from the Spin Hall effect**

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The research in spin Hall effect is now more than a decade old. It started as scientific fundamental basic science, connected to exotic properties of systems with spin-orbit coupling. Nobody realized at the time that this seemingly small effect would revolutionize spintronics in a way that few other effects have. This phenomenon, together with its companion phenomenon of the inverse spin galvanic effect, have evolved in fascinating ways to give us many new branches of physics. But one that is perhaps more important for this school is how SHE has taken a purely academic subject to a practical tool to manipulate magnetization that will lead to new MRAMs and has opened the window to the new emergent field of antiferromagnetic spintronics. This tutorial is a simple birds eye view of this story, with many of the details of the different linked stories being discussed by the tutorials during the week.