

# Spin current generation using surface acoustic waves via spin-vorticity coupling

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Spin current is a key concept in spintronics. Spin-current generation has been achieved by using angular momentum conversion among magnetization, photons, the orbital motion of electrons, and spin angular momentum.

Recently, the interconversion between mechanical angular momentum in moving objects and spin has attracted much attention. In moving objects, spin-vorticity coupling emerges and enables the conversion from mechanical angular momentum into spins[1, 2, 3]. Such mechanical generation of spin current is predicted in rigid, elastic, and fluid materials [1, 2, 3] and all of these are experimentally demonstrated [4, 5, 6].

In this talk, I will present our recent results on spin-current generation by surface acoustic waves via the spin-vorticity coupling[2, 5, 7, 8]. This mechanism enables us to utilize non-magnetic metals with small spin-orbit coupling for spin-current sources.

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