

# Let's TWIST again

## Topological Whirls In SpinTronics

Karin Everschor-Sitte

*Faculty of Physics and Center for Nanointegration Duisburg- Essen (CENIDE),  
University of Duisburg-Essen, 47057 Duisburg, Germany*

Skyrmions are topologically stable whirls that are realized in different areas of physics and were initially discovered by Tony Skyrme in particle physics in the 1960's.

Skyrmions, which occur in magnetic systems, were first observed experimentally in 2009. Since then, the field of magnetic skyrmions has developed into a very active area of research, with the aim of exploiting the topological properties of the magnetic whirl-like particles for spintronics applications. For example, the peculiar twist of the magnetization in skyrmions leads to a very efficient coupling to electric currents and allows for “banana kicks” analogous to those in soccer. More recently, magnetic skyrmions have been of strong interest for unconventional computing schemes such as stochastic computing, quantum computing and reservoir computing.

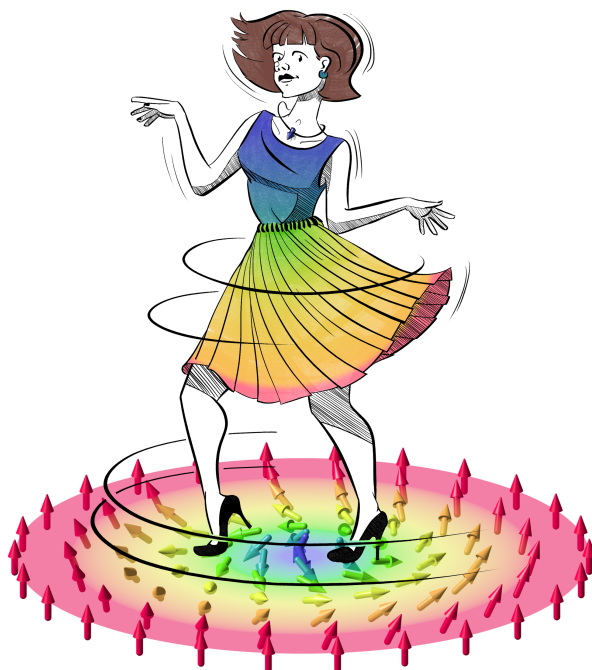


Illustration: Marco Armbruster