MAKING THE MOST OF MAGNETS IN SPORTS EQUIPMENT: QUICK RELEASE COMPONENTS, FRICTIONLESS HUBS AND MOVEMENT SENSORS

USE OF MAGNETIC MATERIALS IN SPORTS

Magnetic materials and the forces they exert may offer new solutions for sports equipment. Can a material or an object be magnetized so it can be attached to something else? Can this be done while controlling the strength of that connection? And can the magnetic field be disabled electronically, allowing it to be released when necessary?

EPFL’s Laboratory for Quantum Magnetism (LQM) is looking at how sports equipment can be attached with magnets and has developed solid expertise in controlling magnetic phenomena. This expertise can be used to size and develop materials and optimize their magnetic properties depending on their intended purpose. It is therefore possible to control the force of attachment. And by combining these developments with active magnets whose fields can be disabled electronically, attachment and release can be controlled.

This feature can be applied to many situations in the sports world. For example, bindings used to attach ski boots to skis could make use of magnetism. A stress-measuring microchip would provide enhanced control when the binding releases the boot in the event of a fall. Likewise, cycling shoes could be attached to pedals using magnets. These applications are opening up new horizons for sports equipment and will deliver improved attachment systems in various sports.

In addition to applications of magnetism in sport equipment, the Laboratory for Quantum Magnetism lends their versatile expertise in measurement techniques and data-analysis to solutions, from assisting UCI combat technological fraud in cycling, to analyses of biomechanical efficiency of pedalling.