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Sommario/riassunto

Clifford algebras, built up from quadratic spaces, have applications in many areas of mathematics, as natural generalizations of complex numbers and the quaternions. They are famously used in proofs of the Atiyah-Singer index theorem, to provide double covers (spin groups) of the classical groups and to generalize the Hilbert transform. They also have their place in physics, setting the scene for Maxwell's equations in electromagnetic theory, for the spin of elementary particles and for the Dirac equation. This straightforward introduction to Clifford algebras makes the necessary algebraic background - including multilinear algebra, quadratic spaces and finite-dimensional real algebras - easily accessible to research students and final-year undergraduates. The author also introduces many applications in mathematics and physics, equipping the reader with Clifford algebras as a working tool in a variety of contexts.