

Andrew Hodges - Title: Spinors and geometry

The modern theory of space and time, as started by Einstein a century ago, is usually thought of as adding the one dimension of time to the three dimensions of space, to give a four-dimensional geometry. But it turns out that this all-important number 4 can also be thought of as factorised into 2×2 , and that the number 2 is naturally connected with the complex numbers. This gives a much less obvious representation of the concepts of physics, involving the concept of 'spinors' which are rather like square roots of vectors. I will explain how this arises from the complex analysis and algebra that you will have already studied, and why this different picture of space-time geometry is so relevant to the modern Standard Model of fundamental particles and forces.