Superspace: an Algebraic Super-Variety

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Abstract: Supersymmetry has been studied for over three decades by physicists, and its superset even longer by mathematicians. Nevertheless, certain fundamental questions remain unanswered. In particular, superspace has proven to be very useful in facilitating computations, but its (1) existence, (2) properties and (3) applications have not been understood in general. Herein, I show that the first of these problems is solved: superspace must exist. I then sketch a framework for analyzing its properties, modeled on algebraic geometry, as will be useful for applications in physics.