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*Extremals in Minkowski's quadratic inequality*

The ball uniquely minimizes the surface area among all convex bodies with fixed volume. On the other hand, if one wishes to control also the mean-width of the bodies, for example, then there are many minimizers whose shapes are quite strange. The characterization of such bodies follows from understanding the equality cases in Minkowski's quadratic inequality. This problem was open for more than hundred years. In this talk I will discuss the problem and its solution. (Joint work with Ramon van Handel.)