

Quadratic Forms over \mathbb{Z} from Diophantus to the 290 Theorem

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Abstract. What follows¹ is a brief historical survey of the representation theory of quadratic forms over the integers. It starts with questions considered by Diophantus about 1800 years ago, dashes past classical contributions of Euler, Lagrange, and Sylvester, considers work of Ramanujan and Dickson, continues with theorems of Conway and Schneeberger, and ends with a short sketch of the proof of the 290-Theorem by Bhargava and Hanke. This survey is self-contained in the sense that all the basic definitions and concepts are provided.

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¹This article is dedicated to a wonderful and exceptional mathematician, human being, and friend: to Timothy O'Meara on the occasion of his 80-th birthday.