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**Reza Gheissari\*** (reza@cims.nyu.edu). *Maximum and shape of 3D Ising interfaces.*

We study the random surface given by the interface separating the minus phase from the plus phase in a low-temperature Ising model in dimensions  $d \geq 3$ . Dobrushin (1972) famously showed that in boxes of side-length  $n$ , the horizontal interface is *rigid*, typically exhibiting order one height fluctuations. We analyze the large deviations of this surface, proving a sharp shape theorem for the pillar of this surface conditionally on it reaching an atypically large height. Using this we are able to extract law of large numbers and Gumbel tail bounds for the maximum height of the interface in a box of side-length  $n$ . Joint work with Eyal Lubetzky. (Received August 03, 2019)