Ms. Zhukova is the daughter of an oligarch, Aleksandr Zhukov, a deputy prime minister who lives in Moscow and made his fortune in oil. And there is help at the ready from her companion, the 41-year-old financier Roman Abramovich, who has riveted the art world recently by paying top dollar for Francis Bacon, Giacometti and others. (Forbes this year estimated his net worth at $23.5 billion.)

Little wonder, then, that in late spring, when word got out that Ms. Zhukova had decided to throw a June 12 dinner party in the bowels of the former bus garage, dealers and collectors around the globe began maneuvering desperately for invitations. Leaving the space bare except for a giant chandelier-style light installation by the artist Rafael Lozano-Hemmer, she invited some 300 people to what she called a “soft opening.” A caterer was flown in from London, and Amy Winehouse was hired to sing. Among those milling about were young European aristocrats like Charlotte Casiraghi, daughter of Princess Caroline of Monaco; New York collectors including the cosmetics heir Ronald S. Lauder and the hedge-fund manager Steven A. Cohen; powerful New York dealers like Larry Gagosian; and artists like Jeff Koons.