1163-60-328   **Oleksii Mostovyi*** (`oleksii.mostovyi@uconn.edu`), University of Connecticut, Department of Mathematics, U1009, 341 Mansfield Road, Storrs, CT 06269-1009, and **Mihai Sirbu** and **Thaleia Zariphopoulou**. *On the analyticity of the value function in optimal investment.*

We study the analyticity of the value function in optimal investment with expected utility from terminal wealth. We identify both a class of utilities and a class of semi-martingale models for which we establish analyticity. Specifically, these utilities have completely monotonic inverse marginals, while the market models have a maximal element in the sense of infinite-order stochastic dominance. We construct two counterexamples, themselves of independent interest, which show that analyticity fails if either the utility or the market model does not belong to the respective special class. We also provide explicit formulas for the derivatives, of all orders, of the value functions as well as their optimizers. This talk is based on the joint work with Mihai Sîrbu and Thaleia Zariphopoulou. (Received September 02, 2020)