Meeting: 1002, Pittsburgh, Pennsylvania, SS 11A, Special Session on Mathematical Finance

1002-60-83 **Dmitry Kramkov***, Carnegie Mellon University, Department of Mathematical Sciences, Pittsburgh, PA 15217. *On the two-times differentiability of the value functions in the problem of optimal investment in incomplete markets.*

We study the two-times differentiability of the value functions to the primal and dual optimization problems that appear in the setting of expected utility maximization in incomplete markets. We also study the differentiability of the optimal solutions to these problems with respect to their initial values. We show that the key conditions for the results to hold true are that the relative risk-aversion coefficient of the utility function is uniformly bounded away from zero and infinity and that the prices of traded securities are sigma-bounded under any numeraire. The presentation is based on a joint paper with Mihai Sirbu (Columbia University). (Received September 01, 2004)