6. Zvi Artstein, **The maximum amplitude cost functional in linear systems.** J. Mathematical Analysis and Applications 50 (1975), 341-349.

Abstract. The maximum amplitude cost of a control function $u(t)$ taken to be *ess sup* $g(t, u(t))$ where $g(t, u)$ is a given function. (A particular example is $g(t, u) =$ the norm of u.) We consider linear systems with this cost functional. The existence of optimal control is proved, and it is shown that the *ess sup* is uniformly essential with respect to the optimal controls. Properties of the extended attainable set are discussed and compared with the case of an integral cost. Finally, we show in what sense a cost function of the form $(\int g(t, u(t)^q)dt)^{1/q}$ approximates the *ess sup* cost functional.

For a copy of this paper send a request to zvi.artstein@weizmann.ac.il.