1046-93-452 **Gheorghe Morosanu*** (`morosanug@ceu.hu`), Department of Mathematics, Nador u. 9, Budapest, 1051, Hungary. *Input Identification to Linear Differential Systems.*

Consider in a given finite interval (0,T) the linear time-invariant system dx/dt=Ax+Bu, y=Hx, where A, B, H are given matrices, x=x(t) denotes the state of the system, u=u(t) is a control policy (input), and y=y(t) is the output trajectory.

A necessary and sufficient condition for input identification to linear differential systems of the above form is given. Our result is based on a finite iterative process and its proof uses elementary arguments involving matrices, finite dimensional linear spaces, Gronwall's lemma, linear differential systems. Our condition is equivalent to the classical condition involving the geometrical concept of controlled invariant. The dimension reduction algorithm we propose seems to be useful in designing deconvolution methods.

Some open problems are also discussed, including the case when A is a nonlinear monotone operator. (Received September 03, 2008)