1125-35-675 **Zhivko S. Athanassov*** (zhivko@math.bas.bg), Institute of Mathematics, Bulgarian Academy of Sciences, G. Bonchev Str. 8, 1113 Sofia, Bulgaria. *Operator Differential Equations in Hilbert Spaces.* Preliminary report.

In this talk, the theory of dissipative linear operators in a Hilbert space developed by R. S. Phillips (1953) is applied to the study of the operator differential equation (E) $\dot{x}(t) + A(t)x(t) = f(t), x(0) = x_0$, where $A(t), t \in [0, T]$, is a family of unbounded linear operators whose domains and ranges are in a Hilbert space H and f is a measurable function on $[0, T]$ with values in H. The prototype of (E) is a partial differential equation or a system of such equations, where $A(t)$ is the differential operator with respect to space variables in some region and t corresponds to the time variable. Under conditions on $A(t)$ similar to those of T. Kato (1953), we first show the existence of a weak solution of (E), and then, that the weak solution is a unique strong solutions which is the limit of a sequance of classical solutions. An application is considered to a time-dependent hyperbolic system of partial differential equations. (Received September 09, 2016)