1120-37-272 **Nikita Barabanov*** (`nikita.barabanov@ndsu.edu`), Department of Mathematics, 408 Minard Hall, P.O. Box 6050, Fargo, ND 58108. *Absolute stability of infinite dimensional periodic systems with unbounded evolution, input and output operators.* Preliminary report.

We consider a generalization of Pritchard-Salamon systems to the case of periodic operators with mixed continuous/discrete time and nonlinearities satisfying local quadratic constraints. To this end there introduced new left and right admissible evolution, input and output periodic operators, and left and right Pritchard-Salamon systems with hybrid time. The auxiliary results include several sections: linear change of variables, duality, and stability. In particular, we establish properties of evolution operators of systems closed by linear feedback; definition and properties of the inverse Pritchard-Salamon system; admissibility of input and output operators for closed loop system; stability and exponential stability of dual operators; input-output stability; a generalization of the Redheffer lemma; absolute stability problem; a solution to this problem based on the existence of a special Hermitian periodic operator. (Received February 23, 2016)