1061-55-50 **Sadok Kallel*** (sadok.kallel@math.univ-lille1.fr), Laboratoire Painleve, Universite des sciences et technologies, 59650 Villeneuve-d'Ascq, France. *On the topology of rational curves in Grassmann manifolds and moduli spaces of linear systems.* Preliminary report.

The study of rational curves in algebraic varieties is a vast topic with connections to Gromov-Witten theory and Gauge theory. We will discuss the special case of holomorphic maps from $\mathbb{C}P^1$ into a complex Grassmann manifold and this space has strong connections with moduli spaces of so-called *controllable and observable linear systems* in control theory. Important work on the topology of this moduli space has been done by B. Mann and R.J. Milgram in the nineties. We review some of this work then use it to describe some homotopy types and give some homological calculations for holomorphic maps of small degrees. This work is joint with Paolo Salvatore (Rome) and Walid Ben Hammouda (Tunis). (Received March 24, 2010)