**Fieldbus Communication in Control System of FLNR**, V.V. ALEINIKOV, S.V. PASCHENKO, JINR - The existing computer control system of FLNR is being renewed to fulfill the increasing requirements of the accelerator operation. This improvement is aiming at providing the physicist with an ion beams of higher quality under more reliable and flexible conditions. The next generation control system of FLNR to come is based on a distributed architecture. Intelligence is handed over to local processors which are responsible for dedicated field operations. This paper gives a short description of the new fieldbus protocol (CtrlBUS) designed in FLNR and discusses the base concept of the token bus protocol as communication support for the control system on the low level of the automation hierarchy.