Physics and technology related to gallium nitride (GaN) semiconductor has developed during last two decades in a revolutionary way, bringing new technological breakthroughs like GaN-based light emitting diodes (LEDs) which were awarded by the 2014 Nobel Prize in physics. Nevertheless, there are still basic problems in physics of GaN to be solved. **One of the big challenges is to crystallize high-quality bulk gallium nitride crystal.** It seems that the best method for realizing this goal is to grow GaN by hydride vapor phase epitaxy (HVPE) method, what is performed today all over the world. HVPE is the most popular and useful technology for GaN crystal growth. Crystallization and production of highly conductive GaN crystals and wafers, with a free carrier concentration higher than $1x10^{18}$ $cm^{-3}$, is well advanced. There are, however**, no commercially available highly resistive (called semi-insulating) GaN substrates** obtained by this method. Such substrates can be very useful as foundations for GaN-base transistor structures operating laterally. In the case of HVPE technology, doping bulk GaN with carbon leads to highly resistive crystals only at room temperature. P-type conductivity is observed at higher temperatures. When iron is used as a dopant creating an electron trapping level in the bandgap, n-type conductivity is revealed at high temperatures. The level connected to iron lies in the GaN energy bandgap only ~0.5 eV below the minimum of conduction band. Therefore, at high temperature electrons are released from the iron level to the conduction band. In general, HVPE method allows to grow bulk GaN with a free carrier concentration at the level of $10^{16}$ $cm^{-3}$ and silicon concentration not higher than $10^{17}$ $cm^{-3}$. High purity of this material allows compensating silicon donors at a low concentration of intentionally incorporated dopant which creates an electron trapping level. **Introducing manganese (Mn) into GaN crystal should result in creating a trapping level in the GaN energy bandgap at ~1.7-1.8 eV below the conduction band minimum and, therefore, pinning of the Fermi level in the middle of the energy bandgap. The crystallized material should remain highly resistive at temperatures up to 1000 K.** At temperature higher than 1000 K and at ambient pressure gallium nitride loses its thermodynamic stability. **The goal of this project is to examine crystallization process by hydride vapor phase epitaxy (HVPE) method of gallium nitride (GaN) doped with manganese (Mn).** This will result in bulk GaN:Mn crystals of lateral size up to 2-inch and thicker than 1 mm. The material should be highly resistive at temperature reaching 1000 K. Two sets of bulk crystal growth processes of HVPE-GaN:Mn will be performed on high structural quality GaN seeds (native seeds). Source of manganese used in the first set of HVPE growth experiments will be metallic Mn of high purity. Hydrochloride (HCl), diluted in carrier gas, will be flown above the Mn source. Manganese dichloride, created as a result of reaction between HCl and Mn, will be transported to GaN growth zone. In this case the only dopant incorporated to the bulk crystal should be Mn. In the second part of experiments metalorganic source of Mn, like $Cp_2Mn$, will be used. This will most probably result in doping of the crystals with not only Mn, but also carbon. The latter creates in the energy bandgap a deep acceptor level (~1 eV above the valence band maximum) and can result in moving the Fermi level below the Mn level. **Bulk crystals grown with two different Mn sources and separated from their native seeds will be characterized and compared in terms of their structural, optical, and electrical properties.**