

This thesis focuses on the study of van der Waals materials predicted to be high-temperature ferromagnets and methods of the influence of the value of magnetic ordering temperatures. We focused on the well-known van der Waals ferromagnet VI_3 and its doping with Se and Te. The Curie temperature of undoped VI_3 is about 49 K. The doping with Se and Te changed the T_C only slightly, within 1 K. The VSe_2 and VTe_2 were also prepared in a polycrystalline form to test their magnetic properties. We attempted to prepare CrSeBr by physical vapour transport method; however, with no satisfactory result. Multiple phase products with binary stoichiometries were obtained.