



**Course:** New Materials and Nanotechnology

1. **The name of the innovation development:** epoxy composite materials for tryboproducts.
2. **Purpose and scope:** the low-load and high-speed friction units for agricultural machinery, compressors, pumps. Possible introduction - in the form of sliding bearings or antifriction coatings in the machine-building, instrument-making, chemical and light industries.
3. **Key features, the essence of the development:** compressive strength – 140MPa; hardness – 320MPa; impact strength – 12...15kJ/m<sup>2</sup>; heat resistance – 482K; thermoresistance –592K; wear resistance – 0,9g/km; coefficient of friction – 0,13; speed sliding – 3,5m/s; specific load – 1,0MPa; temperature – 452K; lubricating environment – missing or water.
4. **Comparison with world analogues, the main advantages of the development:** high wear resistance of the composite due to the rational introduction of multifunctional fillers in optimal correlation, as well as the previous model of formation in the physical field; possibility of exploitation of the developed material of tryboproducts in the conditions of friction without lubricating material in rigid operating modes (P = 1MPa; v = 3,5m/s).
5. **Intellectual Property Protection:** patents for the Utility Model.
6. **Market demand:** the possibility of introducing the latest developments in domestic technology or the manufacture of spare parts.
7. **The state of readiness of development:** developed of composition, manufacturing technology, conducted laboratory research of the properties and structure of epoxy composite samples. There is a need for manufacturing a prototype and carrying out production tests.
8. **Color illustrations, photo development:**



9. **Coordinators for communication:** doctor of sciences, professor Material science Savchuk P.P., Lutsk, st. Lvivska, 75, tel.: +380667892893, e-mail: [savchuk71@gmail.com](mailto:savchuk71@gmail.com)  
Ph.D., Associate Professor Materials science Kashytskyi V.P., Lutsk, st. Lvivska, 75, tel.: +380663090807, e-mail: [v.kashytskyi@Intu.edu.ua](mailto:v.kashytskyi@Intu.edu.ua)