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CREATION AND DEVELOPMENT OF YUZHNOYE SDO'S SCIENTIFIC BALLISTICS SCHOOL

Abstract

Once, Sergei Pavlovich Korolyov, a genius of cosmonautics, has noted: "Rockets designing starts from ballistics and ends by it". Ballistics and flight dynamics are really a theoretical foundation; designing the ballistic missiles, launch vehicles and spacecraft is based on that foundation. Tasks of ballistics (selection of optimal flight trajectories and control programs, evaluation of controllability, stability of rockets' flight and SC injection accuracy, calculation of flight tasks etc.) are closely connected with the tasks of strength, aerodynamics and other applied tasks of rocket designing. Basic rocket parameters – firing range (or weight of the payload injected into the orbit), firing accuracy (or SC injection accuracy), reliability and efficiency of a rocket complex etc. For creation of competitive space rocketry, it is necessary to have an efficient system of ballistic provision of development works – designing, flight tests and standard operation of rockets. A founder and the first manager of the scientific ballistics school of Yuzhnoye SDO is Nikolai Fyodorovich Gerasyuta (1919 – 1987), an outstanding scientist, a corresponding member of Ukraine's Academy of Sciences, Professor, Hero of Socialist Labour. Basic tasks of ballistic designing of rockets, phases of development and achievements of Yuzhnoye SDO's scientific ballistics school are reviewed in the report.