

HPPI RAS

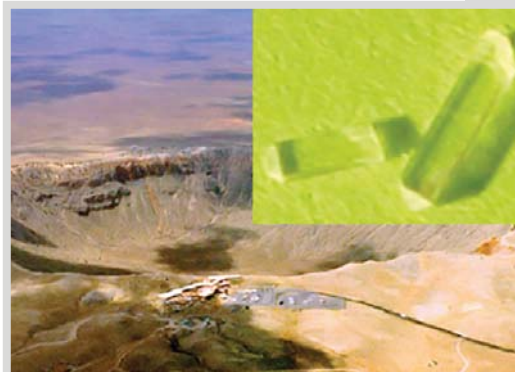
Vereshchagin Institute for High Pressure Physics of the Russian Academy of Sciences

HPPI RAS is a unique scientific institute, which investigates the basic and applied aspects of high condensed matter physics and materials science. Founded in 1958 (in Troitsk – 1964) the institute has won the world recognition because of the synthesis of diamond and cubic boron nitride at the beginning of the 1960s. It was the basis for the Soviet super hard materials industry creation. The following synthesis of superdense silica modification (called 'stishovite', 1961) met the world response and determined the direction of the Earth and planets physics research and proved the HPPI status of high scientific level.

Today the Institute headed by academian V. Brazhkin is the leader in its scientific sphere. 42 PhD of Science work in HPPI.

The main spheres of research:

- Construction of apparatus and investigation of physical properties and structure of materials in the Mbar pressure range;
- quantum effects and strongly correlated systems at high pressures;
- disordered and dispersed systems at high pressures: thermodynamics and kinetics of phase transformations, and lattice dynamics;
- investigation of phase transfers and electronic states in 'traditional' solidstate systems;
- highpressure materials science, including synthesis of new materials (new carbon, composite and superhard materials); investigation of their structure and mechanical properties.



Метеоритный кратер (Аризона, США), где впервые (1962) обнаружен стшовит. Справа сверху – монокристалл плотного кремнезёма, выращенный в ИФВД (2001)

Arizona (USA) meteorite crater, where the superdense silica modification (stishovite) was found for the first time in the world (1962). In the right-upper corner – the dense silica single-crystal grown in HPPI (2001)



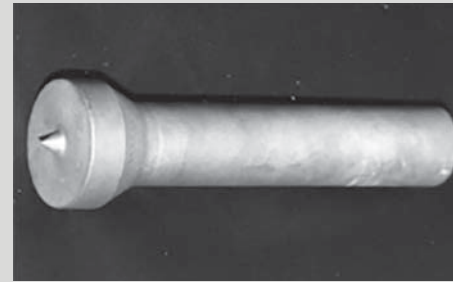
Детали для высокоэнергетических установок и транспорта, изготовленные из углерод-углеродного композита «Десна» на Большом прессе

The parts for high-energy devices and transport made from carbon-carbon composite material 'Desna' with 'The Big press'



Здание Большого пресса

'The Big Press' building



Пример крупных (до 100 мм в диаметре и до 250 мм высотой) реальных изделий сложной формы из нового сверхпластичного твердого сплава, разработанного в ИФВД РАН. Сплав обладает рекордной пластичностью при сжатии

Examples of real large (up to 100 mm in diameter, 250 mm in height) intricately-shaped tools made from new superductile hardmetal developed in HPPI RAS. The alloy has the record ductility under compression