

A New Technique for Thin-Film Coating of Vacuum Vessels with Metal or Carbon Containing Non-Evaporable Getters, N. MARQUARDT, Inst. for Accelerator Physics and Synchrotron Radiation, Univ. of Dortmund; T. DUDA, Inst. of Materials Engineering, Univ. of Dortmund; C. EDELMANN, Inst. of Exp. Physics, Vacuum Div., Univ. of Magdeburg, Germany - A special CVD plasma-spraying technique has been suggested for thin-film coating of inner walls of vacuum vessels with two different kinds of non-evaporable getter materials. Whereas coatings of getters consisting of titanium-zirconium alloys and other metallic components are directly sprayed, new kinds of getter materials on carbon basis, like carbon whiskers, different fullerenes and carbon nanotubes, will be produced. Carbon radicals are formed in the gas phase during the CVD process first, and then thin films of carbon getters are generated on surfaces of different substrate materials. The high speed of the deposition process allows to control the layer thickness in a wide range. Coating parameters will be varied to optimize getter capacity and pumping speed, with the aim of obtaining low getter-activation temperatures. Micro-characterization of surface structures with electron microscopy and STM will be performed, as well as measurements of pumping speed, ultimate pressure and gas release. Photon-stimulated desorption of getter-coated substrates irradiated by synchrotron radiation at the DELTA accelerator are also planned.