The Shockwaves Cluster, involving cooperation between Greece, Russia, USA, Germany, Japan, China, Hungary, Ukraine and Turkey, has been established almost five years ago with the MoU, see Fig.1, signed by the Georgia Institute of Technology, USA, the Nordmetall GmbH, Germany, the Shock Wave and Condensed Matter Research Center of Kumamoto University, Japan and the Project Center for Nanotechnology and Advanced Engineering (PC-NAE), Greece, a joint initiative of the Greek National Center for Scientific Research "Demokritos" and the Russian Research Center "Kurchatov Institute", with the PC-NAE representing also my Ukrainian and Hungarian partners, namely the Bakul Institute for Superhard Materials in Kiev and the S-Metalltech and the Obuda University in Budapest, respectively, as well as my longstanding, more than 30 years, links with the Lavrentyev Institute of Hydrodynamics in Novosibirsk and the Kirensky Institute of Physics in Krasnoyarsk in Siberia, Russia. Four years ago, the Beijing Institute of Technology with its State Key Laboratory of Explosion Science and Technology in China and, last year, the Izmir Institute of Technology, Turkey, joint the Group. Furthermore, it has to be pointed out the involvement in the activities of the Group of Prof. Fernand Marquis, an expert in this field, and my longstanding, over 20 years, collaborator, from the EXPLOMET Conferences in Los Alamos in New Mexico in the US in the middle 90's to his distinguished positions in the University of South Dakota, the Monterey Naval School and the San Diego State University in the USA.
The Cluster provides the opportunity to specialists from Universities, Research Centers and Industry of various countries worldwide to establish cooperation and to share knowledge and experience in the broad area of the advanced manufacturing of advanced materials and structures, mainly associated with high strain-rate phenomena and treatment under shock (explosives, electromagnetics, ballistics (projectiles hitting targets), hypervelocity impact, high temperature/high pressure techniques and so on), focusing in particular, on the relevant Industrial sectors: precision / ultraprecision manufacturing, nanotechnology, powder production and processing, biomedical engineering, transport (mainly aerospace), energy, environment, as well as safety and defense.