

RADIATION EFFECTS IN MATERIALS: STATE-OF-THE-ART AND FUTURE OUTLOOK FOR GLASSES, POLYMERS AND BIOMATERIALS

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A review of the state-of-the-art in systematic investigations of radiation effects in glasses, polymers and biomaterials is presented. Radiation-induced changes for glassy materials exemplified by chalcogenide glasses, caused by high-energy γ -irradiation, are considered from the atomic- and void-species organization viewpoint. In case of polymers, radiation-induced changes for polymethylmethacrylate based composite films, caused by low-energy boron and silver ion irradiation, are considered from the depth profiling of defects viewpoint. Some aspects of radiation-induced changes for biomaterials exemplified by plants grown on soils of Apsheron peninsula (Azerbaijan), caused by low-energy γ -irradiation, are considered from the accumulation of magnetic nanoparticles viewpoint. Future perspectives on the radiation effects in such type of materials are also discussed.