Dr. Ivkov's research focus since 2000 has been to study and develop magnetic nanoparticles and magnetic field devices for magnetic nanoparticle hyperthermia as a therapeutic tool for cancer and other diseases. In 2002, he co-founded Triton BioSystems, Inc. where he led the effort to develop a targeted magnetic nanoparticle and device combination for local ablative thermal therapy. This work produced multiple patents, publications, and a novel magnetic iron oxide nanoparticle formulation that is now commercially available for research. He also implemented a Q7A GMP-compliant manufacturing process (for active pharmaceutical ingredients) that enables rapid translation of the nanoparticle formulation into clinical trials. Upon his arrival to the Department of Radiation Oncology and Molecular Radiation Sciences at The Johns Hopkins University School of Medicine in early 2008, Dr. Ivkov initiated a broad research program to further develop applications of nanoparticle-based heat therapies for cancers in combination with radiation, chemo-, and immune-therapies. He holds joint appointments in the Department of Materials Sciences and Engineering in the Whiting School of Engineering at The Johns Hopkins University, and Department of Oncology in the Sidney Kimmel Comprehensive Cancer Center at The Johns Hopkins University School of Medicine, he is an affiliated faculty of the Institute for NanoBiotechnology, and the Institute for Nanomedicine at Johns Hopkins, and he holds a Guest Research appointment at the National Institute of Standards and Technology (NIST) where he maintains an ongoing collaborative research program to study the physical properties of magnetic iron oxide nanoparticles. He is a member of the Editorial Boards of the *International Journal of Hyperthermia*, and *Convergent Science Physical Oncology*. In addition to developing thermal therapies for cancer, his research interests include structural characterization of magnetic and non-magnetic colloids using neutron scattering and neutron spectroscopy techniques, biology and physics of nano-scale heat transfer, and heat-induced DNA-repair inhibition. His Ph.D. research focused on the thermodynamic properties of actin polymerization as a reversible higher order phase transition. Upon completing his Ph.D. (Physical Chemistry), he was awarded a National Research Council post-doctoral fellowship to study the physical properties of polymers and nanocomposite materials in the Polymers Division at NIST. Subsequently, he served as an instrument scientist at the NIST Center for Neutron Research on the NG-7 horizontal neutron reflectometer. He has published in peer-reviewed scientific literature in nanotechnology, nanobiotechnology, nanomedicine, hyperthermia, magnetic devices, magnetic nanostructures, physical chemistry of polymers and proteins, colloid and interface science, neutron scattering, and targeted therapies.