



বায়োমেডিকেল ফিজিক্স এন্ড টেকনোলজী বিভাগ
ঢাকা বিশ্ববিদ্যালয়
আয়োজিত সেমিনার

RESONANT NANO-PLASMA THERANOSTICS: UPDATES

Sultana N. Nahar

Astronomy Department, Ohio State University, Columbus, OH 4210, USA

Abstract: Resonant nano-plasma theranostics (RNPT) was proposed for more precise destruction of malignant cells via irradiation of heavy element radiosensitizers embedded in the tumor with high energy K-alpha x-rays. It aims at using spectroscopic resonant energy that initiates most effective x-ray interaction for production of maximum number of electrons that kill the surrounding cancer cells. Investigation of RNPT is being carried out under a multi-disciplinary program involving number of departments, such as Astronomy, Physics, Chemistry, Radiation Oncology, Pathology, at the Ohio State University. Our study through numerical simulations on a tumor phantom and on cancerous cell lines, F98 glioma and B16 melanoma, finds the effectiveness of low energy x-rays in the energy range of a few hundreds keV is much higher than that of high energy x-rays in MeV range being used commonly in medical facilities. Some study on rats has also been carried out. Within the objective of RNPT, we also study the resonant fluorescence effect (RFL) in narrow band emitted from multiple ionization states of elements under high energy x-rays. RFL can be implemented for conversion of broad band bremsstrahlung radiation from x-ray machines in medical facilities to monochromatic x-rays which will eliminate harm due to over exposures. I will report findings on both of these.

তারিখ: ২ ডিসেম্বর, ২০১৪

সময়: ১১:০০

স্থান: ফিজিক্স সেমিনার রুম

(কক্ষঃ ৩০০, মোকাররম হোসেন বিজ্ঞান ভবন)

আপনারা সবাই আমন্ত্রিত

অধ্যাপক খোন্দকার সিদ্দিক-ই-রব্বানী

চেয়ারপার্সন