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Development of DD Neutron Generator for life sciences and health

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Neutrons techniques such as Neutron Small Angle Scattering (SANS), Neutron Macro-molecular Crystallography (NMX), Neutron Reflection (NR) are the popular non invasive probes in life sciences and health. All these neutronic instrumentation have been employed in studying the morphology of large molecules and macro-molecular complexes , the drug molecules and their interactions with the biological molecules and other unique structural information's.

These studies are being carried out by neutrons produced via nuclear reactions with accelerators (e.g.

In present work, we will try to look the feasibility of recently developing compact, controlled, safe, high flux neutron sources for numerous applications in life sciences. We will also discuss its limit and opportunities in all kinds of biological, health, research and development. Such as, these sources are already started acting as an alternative of conventional nuclear reactor/accelerator, by addressing the radio pharmaceutical nuclei production, boron neutron capture therapy, elemental composition of bone (specially Mn), non invasive radiography etc issues.

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