Neutron Sources

Properties of neutron sources for imaging purpose

Source type	*nuclear reactor*	*neutron generator*	*spallation source*	*radio isotope*
Reaction	fission	D-T fusion	spallation by protons	gamma-n-reaction
used material	U-235	deuterium, tritium	high mass nuclides	Sb, Be
neutron generation rate, [neutrons/s]	1,00E+16	4,00E+11	1,00E+15	1,00E+08
beam flux [n/cm2 s]	10^6 to 10^9	10^5	10^6 to 10^8	10^3
neutron energy	fast, thermal and cold	fast, thermal	fast, thermal and cold	24 keV, thermal
limitation of use	burn up	life time tube	target life time	half life Sb-124
typical operation cycle	1 month	1000 h	1 year	0,5 year
costs of the facility	high	medium	very high	low