

## Beams Characteristic in Water Phantom Irradiation by Epithermal Neutron Beam from Double Layer Beam Shaping Assembly

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| <b>Title</b>          | Beams Characteristic in Water Phantom Irradiation by Epithermal Neutron Beam from Double Layer Beam Shaping Assembly   |
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| <b>Accreditation</b>  |  |
| <b>Abstract</b>       | A Double Layer Beam Shaping Assembly (DLBSA) is designed to produce epithermal neutrons for BNCT purposes. The MCNPX program is utilized as the software to design the DLBSA and phantom. Distribution of epithermal neutron and gamma flux in the DLBSA and phantom and absorbed dose in phantom are computed using the Particle and Heavy Ion Transport System (PHITS) program. Testing results of epithermal neutron beams irradiation on water phantom shows that epithermal neutrons are thermalized and penetrate the phantom up to 12 cm in depth. Maximum value of absorbed dose is $2 \times 10^{-3}$ Gy at a depth of 2 cm in phantom. |
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| <b>Author</b>         | Dr BILALODIN, S.Si, M.Si   |