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Influence of Mass of the Fragmenting System on Projectile Multifragmentation Spectrum at Dubna Energy

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The multifragment decays of Mg projectiles after collisions with various emulsion targets at a bombarding energy of 4.5 AGeV has been studied. The bound charge $Z(b)$, which is the sum of all the projectile fragments with charge $Z(PF) \geq 2$, is considered to be one of the important observable in the study of projectile multifragmentation. Correlation between mean number of intermediate mass fragments $N(IMF)$ and $Z(b)$ is one of the most interesting aspects of studying projectile multifragmentation. In this report an attempt has been made to study the variation of $N(IMF)$ on the mass of the fragmenting system $Z(b)$ for Mg-Em interaction at 4.5 AGeV. A rise and fall pattern in $N(IMF)$ vs $Z(b)$ plot with the maximum value of $N(IMF)$ corresponding to the value of $Z(b) = 6-7$ is observed for the Mg-Em system. The value of bound charge corresponding to the maximum value of average number of intermediate mass fragments is found to be consistent with the results reported by ALADIN group[1-5]. The variation of $N(IMF)$ on $Z(b)$ normalized with the projectile charge $Z(p)$ indicates a clear size effect for the studied systems.

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