

Invariant random subgroup (IRS) of a countable group G is a probability measure on the space $\text{Sub}(G)$ of subgroups of G invariant under the action of G by conjugations. IRS's serve as models for group actions. Character on a group G is a positive-definite function on G constant on conjugacy classes. Characters play important role in representation theory. To each IRS μ on a group G one can associate two characters

$$\chi_\mu(g) = \mu(\{H : gHg^{-1} = H\}), \psi_\mu(g) = \mu(\{H : g \in H\}), g \in G.$$

Some natural questions about the corresponding maps from IRS's to characters $\mathcal{X}(\mu) = \chi_\mu$, $\Psi(\mu) = \psi_\mu$ are whether they coincide, whether they are injective, and whether they preserve extreme points. In this talk I will present the results on the IRS's and characters for branch and weakly branch groups of actions on regular rooted trees and give partial answers to the above mentioned questions about the corresponding maps \mathcal{X} and Ψ .