

Elementary particles and invariant measures on p -adic space-time

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We extend the method of L. Schwartz to classify elementary scalar particles in p -adic space time. In the real setting of Schwartz, elementary particles of the Poincaré group correspond to invariant tempered measures supported on the orbits of the Poincaré group. We describe an analogous notion of temperedness in the p -adic setting. In the p -adic setting, elementary particles of the generalized Poincaré group correspond to invariant measures supported on the orbits of the generalized Poincaré group. These measures are tempered in the sense we have described.