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## Ballisticity Conditions for Random Walk in Random Environment

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Consider a random walk in a uniformly elliptic i.i.d. random environment in dimensions  $d \geq 2$ . In 2002, Sznitman introduced for each  $\gamma \in (0, 1)$  the ballisticity conditions  $(T)_\gamma$  and  $(T')$ , the latter being defined as the fulfilment of  $(T)_\gamma$  for all  $\gamma \in (0, 1)$ . He proved that  $(T')$  implies ballisticity and that for each  $\gamma \in (0.5, 1)$ ,  $(T)_\gamma$  is equivalent to  $(T')$ . It is conjectured that this equivalence holds for all  $\gamma \in (0, 1)$ . Here we prove that for  $\gamma \in (\gamma_d, 1)$ , where  $\gamma_d$  is a dimension dependent constant taking values in the interval  $(0.366, 0.388)$ ,  $(T)_\gamma$  is equivalent to  $(T')$ . This is achieved by a detour along the effective criterion, the fulfilment of which we establish by a combination of techniques developed by Sznitman giving a control on the occurrence of atypical quenched exit distributions through boxes.

*This is a joint work with Alex Drewitz.*