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On rigidity properties of time-changes of unipotent flows

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Abstract. We study time-changes of unipotent flows on finite-volume quotients of semisimple linear groups, generalising previous work by Ratner on time-changes of horocycle flows. Any measurable isomorphism between time-changes of unipotent flows gives rise to a non-trivial joining supported on its graph. Under a spectral gap assumption on the groups, we show the following rigidity result: either the only limit point of this graph joining under the action of a one-parameter renormalising subgroup is the trivial joining, or the isomorphism is "affine", namely it is obtained by composing an algebraic isomorphism with a (non-constant) translation along the centraliser.

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