Return time sets and product recurrence

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In this talk we will discuss characterizations of return time sets of recurrent points for countable infinite group actions and apply the result to product recurrence, partially answering a question of Auslander and Furstenberg (1994). To be specific, we show that a subset F of a countable discrete group G contains a return time set of some piecewise syndetic recurrent point if and only if F is a quasi-central set, and a point x in a dynamical system (X, G) is distal if and only if it is piecewise syndetic product recurrent.

References

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