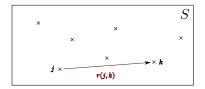
Nucleation phase of condensing zero range process

Johel Beltrán, PUCP - IMCA

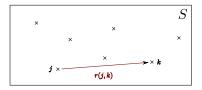
Joint work with C. Landim and M. Jara (IMPA)

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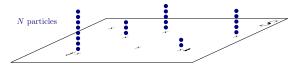
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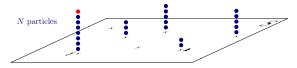


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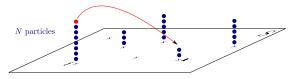
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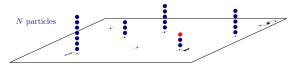
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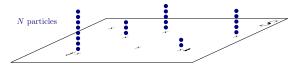
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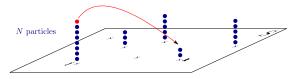
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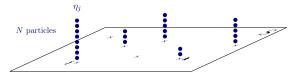
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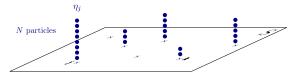


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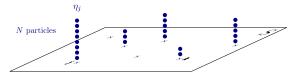
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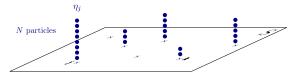
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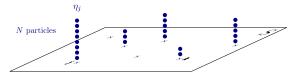


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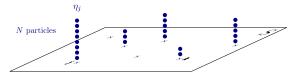
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 $\eta^{N}(t), t \ge 0$ (condensing zero range process)

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Does $U^N(t)$ converge?

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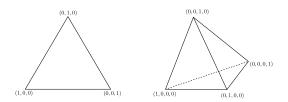
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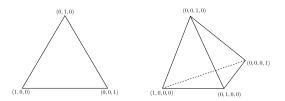
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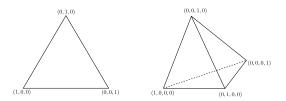
Theorem (B., Jara, Landim)

For b > 1, U^N converges to U.

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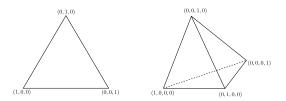
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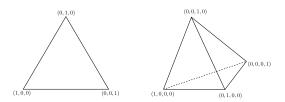
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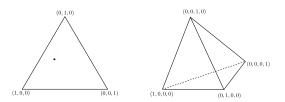


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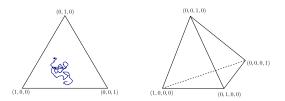


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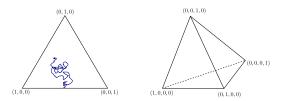


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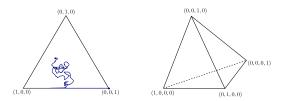


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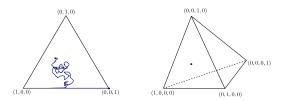


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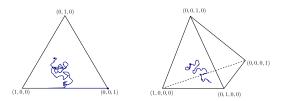


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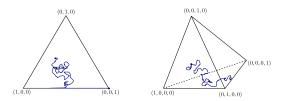


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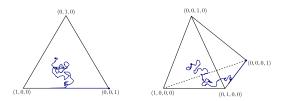


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- $t \mapsto U(t)$ is continuous.
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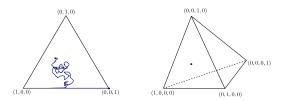


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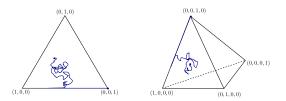


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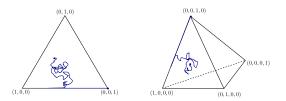


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- The absorbing time has finite expectation.

Johel Beltrán

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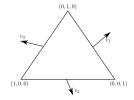
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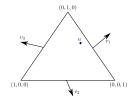


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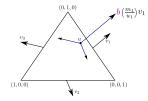


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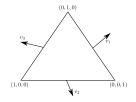
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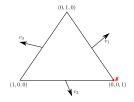
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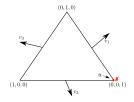
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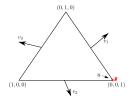
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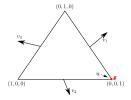
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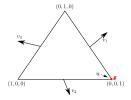
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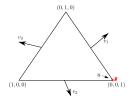
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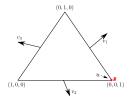
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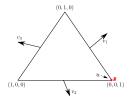
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Johel Beltrán

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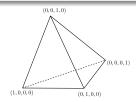
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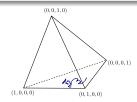
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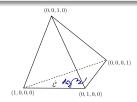
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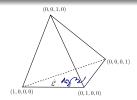
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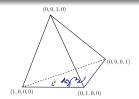
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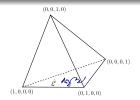
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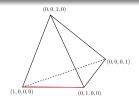
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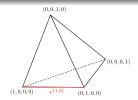
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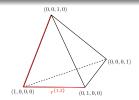
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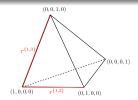
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Given a starting point $u\in\mathbb{E},$ $U(\cdot)$ is the unique (in law) process such that U(0)=u and

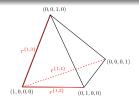
$$H(U(t)) - \int_0^t (\mathcal{L}H)(U(t))dt , \qquad t \ge 0 ,$$

is a martingale for all $H \in \mathcal{D}$.

We proved

Theorem (B., Jara, Landim)

Existence and uniqueness for $(\mathcal{L}, \mathcal{D})$ -martingale problem.



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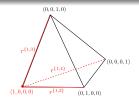
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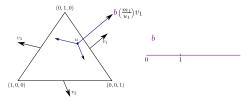
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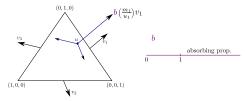
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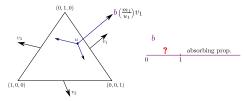
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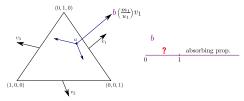
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• What if $b \leq 1$?

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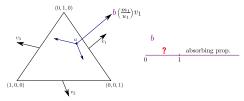
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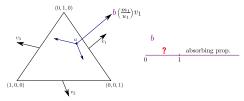


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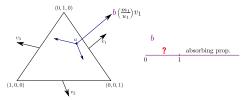


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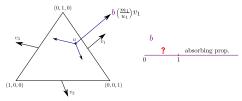
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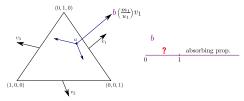
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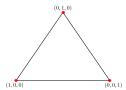
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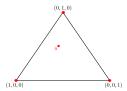
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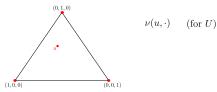
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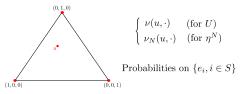


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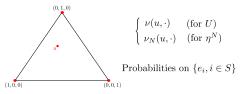


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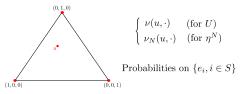


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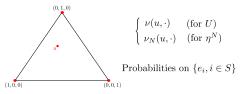
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Condensing zero-range process

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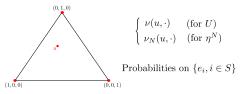
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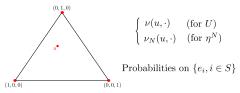
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- What if S is not fixed?

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