**报告摘要[Abstract]：**We consider a critical superprocess $\left\{X;P\_{μ}\right\}$ with general spatial motion and spatially dependent stable branching mechanism with lowest stable index$ γ\_{0}>1$. We first show that, under some conditions, $P\_{μ}(\left‖X\_{t}\right‖\ne 0)$ converges to 0 as $t\rightarrow \infty $ and is regularly varying with index$(γ\_{0}-1)^{-1}$. Then we show that, for a large class of non-negative testing functions$ f$, the distribution of$ \left\{X\_{t}(f);P\_{μ}(\left‖X\_{t}\right‖\ne 0)\right\}$, after appropriate rescaling, converges weakly to a positive random variable $z^{(γ\_{0}-1)}$ with Laplace transform

$$E\left[e^{-uz^{(γ\_{0}-1)}}\right]=1-(1+u^{-(γ\_{0}-1)})^{^{-1}/\_{(γ\_{0}-1)}}$$

This is a joint work with Yan-xia Ren and Renming Song.