

# Asymptotic behavior of critical primitive multi-type branching processes with immigration

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Under natural assumptions a Feller type diffusion approximation is derived for critical multi-type branching processes with immigration when the offspring mean matrix is primitive (in other words, positively regular). Namely, it is proved that a sequence of appropriately scaled random step functions formed from a sequence of critical primitive multi-type branching processes with immigration converges weakly towards a squared Bessel process supported by a ray determined by the Perron vector of the offspring mean matrix.

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