MULTITYPE BRANCHING PROCESSES
WITH IMMIGRATION
IN RANDOM ENVIRONMENT,
AND POLLING SYSTEMS

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For multitype branching processes with immigration evolving in a random environment and producing a final product, we find the tail distribution of the size of the final product accumulated in the process for a life period. Using this result, we investigate the tail distributions of the busy periods of the queueing polling systems of branching type with random service disciplines and random positive switch-over times.

Key words and phrases: subcritical branching processes with immigration, final product, random environment, limit theorems, polling systems, busy period.

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