

Lui, Roger

A nonlinear integral operator arising from a model in population genetics. III. Heterozygote inferior case. (English) [Zbl 0585.45001](#)
SIAM J. Math. Anal. 16, 1180-1205 (1985).

[For parts I and II see *ibid.* 13, 913–937, 938–953 (1982; [Zbl 0508.45006](#), [Zbl 0508.45007](#))]. The author continues his series of papers concerning the asymptotic behavior of the solutions to the recursion $u_{n+1} = Q[u_n]$ for $n \geq 0$. Here $Q[u](x) = \int k(x-y)g(u(y)) dy$, $K(x) \geq 0$, $\int K(x) dx = 1$. This model proposed by *H. F. Weinberger* [*Lect. Notes Math.* 648, 47–96 (1978; [Zbl 0383.35034](#))] to describe the spread of advantageous genes, is similar to the model of *R. A. Fisher* [The advance of advantageous genes, *Ann. Eugenics* 7, 355–369 (1937; [JFM 63.1111.04](#))]. The gene fraction is given by $g(u) = \frac{su^2+u}{1+su^2+\sigma(1-u)^2}$.

Reviewer: [L. A. Sakhnovich](#)

MSC:

[45G10](#) Other nonlinear integral equations
[92D10](#) Genetics and epigenetics
[45M05](#) Asymptotics of solutions to integral equations

Cited in **1** Review
Cited in **9** Documents

Keywords:

heterozygote inferior case; asymptotic behavior; recursion; discrete time population genetics model

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