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16. Applications

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Delta-functions and analysis of ecological interactions in a variable environment.

For research of non-linear ecological interactions with a periodic modification of environmental factors it is offered to use models, the coefficients of which are periodic delta-functions. An appropriate analytical technique is developed, on base of which criteria of a selection of genetic structure of the set of evolutionary stable parameters and "paradoxical" phenomena in competitive communities are defined (intrasitivity of the displacemenet, etc). Cyclical dynamics of populations with an intransitive relations of competitive displacement is considered. Ref. 1. Il'ichev V. G., A fragment of the mathematical theory of a competition of biological species in a variable envitonment, *Differential equations.* V. **27, 3**, 437–447. 2. Il'ichev V. G., Delta-functions and research of ecologian Volterra models in a variable envitonment, *Izv. Vuzov. Matematika*, in press. (1998).