Monotone and slowly oscillating wavefronts of the KPP-Fisher differential-difference equation

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We present recent results on traveling fronts (i.e. positive heteroclinic solutions) for the Kolmogorov-Petrovskii-Piskunov-Fisher differential-difference equation. We discuss such aspects as the existence, uniqueness, approximation, monotonicity and oscillatory properties of the traveling fronts. In the 'non-monotone' part of the work, our approach is based on the construction and subsequent analysis of some auxiliary one-dimensional maps possessing the negative Schwarz derivative. This connects the problem of the existence of traveling fronts to the famous Wright's $3/2$-stability theorem and Wright's global stability conjecture.

References

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