

# The asymptotes of Fučík curves for asymmetric difference operator

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We investigate the structure of the Fučík spectrum for particular asymmetric difference operator (The discrete Neumann boundary value problem). We consider the problem

$$\mathbf{A}\mathbf{u} = \alpha\mathbf{u}^+ - \beta\mathbf{u}^-,$$

where  $\mathbf{u} = [u_1, \dots, u_n]$ ,  $\mathbf{u}^+ = [u_1^+, \dots, u_n^+]$ ,  $\mathbf{u}^- = [u_1^-, \dots, u_n^-]$  and

$$\mathbf{A} = \begin{bmatrix} 2 & -2 & & & & \\ -1 & 2 & -1 & & & \\ & \ddots & \ddots & \ddots & & \\ & & -1 & 2 & -1 & \\ & & & -2 & 2 & \end{bmatrix}.$$

We show the correspondence between the asymptotes of Fučík curves and the pareto eigenvalues.

## References

- [1] *R. Ma, Y. Xu, Ch. Gao*: Spectrum of linear difference operators and the solvability of nonlinear discrete problems. *Discrete Dyn. Nat. Soc.* 2010 (2010), ID 757416, pp. 27.
- [2] *A. Seeger, J. Vicente-Pérez*: On cardinality of Pareto spectra. *Electron. J. Linear Algebra* 22 (2011), 758–766.