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VARIATIONAL CHARACTERIZATIONS OF THE SIGN-REAL AND THE SIGN-COMPLEX SPECTRAL RADIUS*

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Abstract. The sign-real and the sign-complex spectral radius, also called the generalized spectral radius, proved to be an interesting generalization of the classical Perron-Frobenius theory (for nonnegative matrices) to general real and to general complex matrices, respectively. Especially the generalization of the well-known Collatz-Wielandt max-min characterization shows one of the many one-to-one correspondences to classical Perron-Frobenius theory. In this paper the corresponding inf-max characterization as well as variational characterizations of the generalized (real and complex) spectral radius are presented. Again those are almost identical to the corresponding results in classical Perron-Frobenius theory.

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