Introduction to the spectral theory of Toeplitz operators

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Abstract

We will consider Toeplitz operators on Hardy spaces over the unit circle and discuss generalisations of several classical results including those by Brown-Halmos, Hartman-Wintner, Widom, Douglas, Coburn, Simonenko, and Gohberg-Krupnik. We will describe the (essential) spectra of Toeplitz operators with continuous and piecewise continuous symbols, and with symbols belonging to the algebra $C + H^\infty$. We will also consider some other classes of symbols with non-jump discontinuities. Some of the above results will be presented in the framework of abstract Hardy spaces built upon Banach function spaces, while other ones will be confined to the classical Hardy spaces H^p or to their weighted analogues $H^p(w)$.