The Essential Spectra of Some Weighted Composition Operators on the Disk Algebra

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Abstract : We obtain a complete description of semi-Fredholm spectra of operators of the form $(T\,f)(z) = w(z)f(B(z))$ acting on the disk algebra in the case when B is either elliptic or double parabolic finite Blaschke product and w has no zeros on the unit circle. Actually, in this case the lower semi-Fredholm spectrum is a disk, and the upper semi-Fredholm spectrum is a circle. We consider some examples and discuss some unsolved problems Our results hint on the possibility of interesting connections between the spectral properties of weighted composition operators and complex dynamics.
Keywords : weighted composition operators, essential spectra, Blaschke products, Julia set

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