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On Toeplitz operators on the poly harmonic Bergman space

Consider the upper half plane \mathbb{H} with the Lebesgue measure. Although the harmonic Bergman space $b^2(\mathbb{H})$ is represented in terms of the Bergman and the anti-Bergman spaces, Toeplitz operators acting on $b^2(\mathbb{H})$ behave different from those acting on the Bergman space. For example, contrary to the case of the Bergman space, the C^* -algebra generated by Toeplitz operators with homogeneous symbols acting on the harmonic Bergman space is not commutative. On the other hand, the harmonic Bergman space is contained in each poly harmonic Bergman space, thus, it is natural to study Toeplitz operators acting on the last spaces. With this in mind, in this talk we study the C^* -algebra generated by Toeplitz operators with homogeneous symbols acting on the poly harmonic Bergman space of the upper half plane.