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Title: On the spectrum of differential Operators with periodic PT-symmetric matrix coefficients

Abstract: We study the spectrum of the differential operator L generated in the space of the vector-valued functions by the differential expression $L(n, m)$ of order n with periodic PT-symmetric $m \times m$ matrix coefficients. We consider all different cases.

Case 1: m and n are odd numbers.

Case 2: n is odd and m is even.

Case 3: n is an even number and m is an arbitrary positive integer.

In Case 1 we show that the spectrum of L contains all real line $(-\infty, \infty)$. In cases 2 and 3 we find conditions on the coefficients of $L(n, m)$ under which the spectrum of L contains the sets $(-\infty, -H] \cup [H, \infty)$ and $[H, \infty)$, respectively, for some H .