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Evgeny Abakumov and **Constanze Liaw***, Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77843, and **Alexei Poltoratski**. *Finding cyclic vectors*.

In perturbation theory, the cyclicity of an operator is often a natural assumption in the hypothesis of many results. So far, the problem of finding a cyclic vector has attracted only little attention. We will discuss two results in that direction, as well as their striking applications:

In the first part, we will learn how to find many cyclic vectors for rank one perturbations, and consider some applications concerning the locations where functions of the Payley–Wiener class are allowed to have zeros.

Then we will turn our attention to so-called Anderson-type Hamiltonians (a generalization of random Schroedinger operators) and state that under mild conditions, every non-zero vector is cyclic almost surely. (Received January 18, 2012)