Erratum to: Spectral Approximation of Bounded Self-Adjoint Operators—A Short Survey

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Erratum to:
Chapter 'Spectral Approximation of Bounded Self-Adjoint Operators—A Short Survey' in: P.G. Romeo et al. (eds.), *Semigroups, Algebras and Operator Theory*, Springer Proceedings in Mathematics & Statistics 142, DOI 10.1007/978-81-322-2488-4_15

The original version of this article was inadvertently published with an incorrect abstract for chapter 15. The correct abstract appears here

Abstract A survey of the different techniques used to approximate the spectrum of bounded self-adjoint operators on separable Hilbert spaces, is presented here. Approximating an infinite dimensional operator by its finite dimensional truncations were useful to approximate the eigenvalues of compact operators. The lack of operator norm convergence makes it difficult in the case of non compact operators. In 1994, W.B. Arveson identified a class of operators for which the finite dimensional truncations are useful in the spectral approximation. The C^*-algebraic approach due to Arveson was a landmark in the theory of spectral approximation. Later, some progress was made with the crucial assumption; connectedness of the essential spectrum. The spectral pollution problems and spectral gap problems were also addressed by many mathematicians. The use of the quadratic projection

The online version of the original chapter can be found under
DOI 10.1007/978-81-322-2488-4_15

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P.G. Romeo et al. (eds.), *Semigroups, Algebras and Operator Theory*,
Springer Proceedings in Mathematics & Statistics 142,
DOI 10.1007/978-81-322-2488-4_17

method and second order relative spectra are also discussed in this article. Some of the recent results in the spectral gap prediction problems are explained here. Also, we try to modify the truncation method by using the notion of preconditioners and matrix convergence in the sense of eigenvalue clustering.