



## Essential descent spectrum equality

### Communication Info

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### Abstract

A bounded operator  $T$  on a Banach space  $X$  is said to satisfy the essential descent spectrum equality if the descent spectrum of  $T$  coincides with its essential descent spectrum.

In this note, we give some conditions under which the equality

$$\sigma_{\text{desc}}(T) = \sigma_{\text{desc}}^e(T)$$

holds for  $T$ . To obtain these conditions, we establish the following results:

1. Let  $T \in \mathcal{B}(X)$ . Then

$$\sigma_{\text{desc}}(T) = \sigma_{\text{desc}}^e(T) \cup \mathcal{S}(\bar{T}^*).$$

Let  $T \in \mathcal{B}(X)$ . If  $T^*$  has the single-valued extension property (SVEP), then

$$\sigma_{\text{desc}}(T) = \sigma_{\text{desc}}^e(T).$$

To illustrate these results, we provide examples of operators for which the equality  $\sigma_{\text{desc}}(T) = \sigma_{\text{desc}}^e(T)$  holds.

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### References

- [1] P.Aiena, Property (w) and perturbations II, J.Math.Anal.Appl, 342, 2008, 830-837.
- [2] O.Bel Hadj Fredj, Essential descent spectrum and commuting compact perturbations, Extra Math, 21, 2006, 261-271.
- [3] M.Burgos, A. Kaidi, M. Mbekhta and M. Oudghiri, The descent spectrum and perturbations, Journal of Operator Theory, 56, 2006, 259-271.
- [4] D.C.Lay, Spectral analysis using ascent, descent, nullity and defect, Math. Ann, 124, 1970, 197-214.
- [5] M.Mbekhta, V. Muller, On the axiomatic theory of spectrum II, Studia Math, 199, 1996, 129-147.