

Ideal boundedness of series vs Banach spaces possessing a copy of c_0

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Suppose that X is a Banach space. We will show that X does not contain an isomorphic copy of c_0 if and only if, for each series $\sum x_n$ which is not unconditionally convergent in X , the respective sets coding all bounded subseries and rearrangements are meagre. We use the Bessaga–Pełczyński c_0 -embedding Theorem as a tool. Moreover, we prove a similar result for the ideal boundedness (assuming additionally $\liminf \|x_n\| = 0$ or $\limsup \|x_n\| = \infty$) and for the class of Baire ideals using Talagrand's characterisation.

- [1] M. BALCERZAK, M. POPLAWSKI, A. WACHOWICZ, *The Baire category of ideal convergent subseries and rearrangements*, *Topology Appl.* 231 (2017), 219–230.
- [2] M. POPLAWSKI, *Ideal boundedness of subseries and rearrangements vs Banach spaces possessing a copy of c_0* , arXiv:1906.02449v1 (2019)