

## Invariant Banach limits

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A linear functional  $B \in l_\infty^*$  is said to be a Banach limit if  $B(1, 1, \dots) = 1$ ,  $B \geq 0$  and  $B(Tx) = Bx$  for any  $x \in l_\infty$  where  $T$  is the translation operator, that is  $T(x_1, x_2, \dots) = (x_2, x_3, \dots)$ . We present a set of easily verifiable sufficient conditions on an operator  $H \in L(l_\infty)$ , guaranteeing the existence of a Banach limit  $B$  s. t.  $B = BH$ . We apply our results to the classical Cesaro operator. We present another application to geometry of non-separable Banach spaces.

Joint work with F. A. Sukochev (Sydney University, Australia).