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Amenable dynamical systems through Herz-Schur multipliers

A generalized theory of Herz-Schur multipliers for dynamical systems has recently emerged through independent work of Bédos-Conti and McKee-Todorov-Turowska. In this talk, we generalize the well-known Herz-Schur multiplier characterizations of amenability to W*- and C*-dynamical systems over arbitrary locally compact groups. As byproducts of our results, we (1) answer a question of Anantharaman-Delaroche and obtain a Reiter type characterization of amenable W*-dynamical systems, and (2) show that a commutative C*-dynamical system is amenable if and only if the underlying action is topologically amenable. Combined with recent work of Buss-Echterhoff-Willett, this latter result implies the equivalence between topological amenability and measurewise amenabilty for G-spaces X when both G and X are second countable. This is joint work with Alex Bearden.