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Approximate amenability in type I von Neumann algebras

In this talk, we employ Ozawa-Runde's method to investigate approximate amenability in type I von Neumann algebras. We show that this type of von Neumann algebra is approximately amenable if and only if it is amenable.

Must an approximately amenable von Neumann algebra be amenable? The question has been open for at least 20 years. N. Ozawa made the first breakthrough in answering this question in 2004. He showed that $B(\mathcal{H})$ is not approximately amenable for any Hilbert space \mathcal{H} of infinite dimension. Later, V. Runde provided more friendly proof of Ozawa's result in his well-known textbook on amenability.