DUAL SPACE OF NONCOMMUTATIVE WEAK ORLICZ-HARDY SPACE

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We introduce noncommutative weak Orlicz spaces associated with a weight and study their properties.

noncommutative Lorentz space, noncommutative Marcinkiewicz space, weak noncommutative Orlicz space, noncommutative weak Orlicz-Hardy space

Keywords:

Al-Rashed and Zegarliński introduced the noncommutative Orlicz spaces associated to a normal faithful state on a semifinite von Neumann algebra. Ayupov/Chilin and Abdullaev considered a certain class of noncommutative Orlicz spaces, associated with arbitrary faithful normal locally-finite weights on a semi-finite von Neumann algebra $\mathcal{M}$. Liu/ Hou and Wang have investigated weak version of Orlicz spaces. The weak noncommutative Orlicz spaces were investigated by Bekjan/ Chen/ Liu and Jiao. We extend the results of Ayupov/Chilin and Abdullaev to the weak noncommutative Orlicz space case. We introduce noncommutative weak Orlicz spaces associated with a weight and study their properties. The dual spaces of commutative weak L_p -spaces were characterized by Cwikel and Sagher, its noncommutative versions proved by Ciach (independently, by Han and Shao). Ciach introduced noncommutative Lorentz space and noncommutative Marcinkiewicz space, and discussed their dual spaces. We also define noncommutative weak Orlicz-Hardy spaces and characterize their dual spaces.

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