CHARACTERIZATION OF INTERPOLATION BETWEEN GRAND, SMALL OR CLASSICAL LEBESGUE SPACES

AMIRAN GOGATISHVILI

INSTITUTE OF MATHEMATICS OF THE CZECH ACADEMY OF SCIENCES

ŽITNÁ, 115 67 PRAGUE 1, CZECH REPUBLIC

E-MAIL: GOGATISH@MATH.CAS.CZ

Abstract In this talk we show that the interpolation spaces between Grand, small or classical Lebesgue are the so called Lorentz-Zygmund spaces or more generally $G\Gamma$-spaces. As a direct consequence of our results, any Lorentz-Zygmund space $L^{a,r}(LogL)^\beta$ is an interpolation space in the sense of Peetre either between two Grand Lebesgue spaces or between two small spaces, provided that $1 < a < \infty, \beta \neq 0$. The method consists in computing the so called K-functional of the interpolation space and in identifying the associated norm.