CONVEXITY AND EVENNESS IN MODULARED SEMI-ORDERED LINEAR SPACES

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Introduction

Let R be a universally continuous semi-ordered linear space[1]. A functional m on R is called a *modular*, if it satisfies the following modular conditions:

(1) $0 \leqq m(a) \leqq \infty$ for all $a \in R$;

(2) if $m(\xi a)=0$ for all $\xi \geqq 0$, then $a=0$;

(3) for any $a \in R$ there exists $\alpha > 0$ such that $m(\alpha a) < \infty$;

(4) for every $a \in R$, $m(\xi a)$ is a *convex* function of ξ;

(5) $|a| \leqq |b|$ implies $m(a) \leqq m(b)$;

(6) $a \frown b=0$ implies $m(a+b)=m(a)+m(b)$;

(7) $0 \leqq a_\lambda \uparrow_{\lambda \in \Lambda} a$ implies $\sup\limits_{\lambda \in \Lambda} m(a_\lambda)=m(a)$.

When a modular m is defined on R, R is called a *modulared semi-ordered linear space* with the modular m and is denoted by (R, m), if necessary. We can define two kinds of norms on R by the formulas:

1) We use mainly notation and terminology of [12], [13].