Yarim additiv funksionallar

X kompaktli Hausdorf fazosi bo‘lsin. $C(X)$ orqali barcha uzluksiz $\varphi: X \to \mathbb{R}$ funksiyalarning nuqtali amallar va sup-normaga nisbatan Banax algebrasini belgilaylik. Norma

$$\| \varphi \| = \sup\{|\varphi(X)|: x \in X\},$$

tenglik orqali aniqlanadi. Har bir $c \in \mathbb{R}$ uchun $c_X(x) = c$, $x \in X$ tenglik bilan aniqlangan doimiy funksiyani c_X bilan belgilaymiz. $\varphi,\ \psi \in C(X)$ bo‘lsin. U holda $\varphi \le \psi$ tengsizlik barcha $x \in X$ uchun $\varphi(x) \le \psi(x)$ ekanligini bildiradi.

1.1-Ta’rif. $\mu: C(X) \to \mathbb{R}$ funksional:

1. agar barcha $c \in \mathbb{R}$ va $\varphi \in C(X)$ lar uchun $\mu(\varphi + c_X) = \mu(\varphi) + c$ tenglik bajarilsa, *kuchsiz additiv* deyiladi;
2. agar $\varphi \le \psi$ bo‘ladigan har qanday $\varphi,\ \psi \in C(X)$ funksiyalar juftligi uchun $\mu(\varphi) \le \mu(\psi)$ bo‘lsa, *tartibni saqlaydi* deyiladi;
3. agar $\mu(1_X) = 1$ bo‘lsa, *normalangan* deyiladi;
4. agar barcha $\varphi \in C(X)$, $t \in \mathbb{R}_+ = [0,\ +\infty)$ uchun $\mu(t\varphi) = t\mu(\varphi)$ bo‘lsa, *musbat bir jinsli* deyiladi;
5. agar barcha φ, $\psi \in C(X)$ funksiyalar uchun $\mu(\varphi + \psi) \le \mu(\varphi) + \mu(\psi)$ bo‘lsa, *yarim additiv* deyiladi.

X kompaktli Hausdorf fazosi uchun yuqorida ko‘rsatilgan beshta shartni qanoatlantiruvchi barcha $\nu: C(X) \to \mathbb{R}$ funksionallar to‘plamini $OS(X)$ bilan belgilaymiz. Qisqalik uchun bunday funksionallarni yarim additiv funksionallar deb yuritamiz.