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Homomorphisms of l^1-algebras on signed polynomial hypergroups. (English)

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Let $\{R_n\}$ and $\{P_n\}$ be two polynomial systems which induce signed polynomial hypergroup structures on N_0. The paper under review investigates when the Banach algebra $l^1(N_0, h^R)$ can be continuously embedded into or is isomorphic to $l^1(N_0, h^P)$. Certain sufficient conditions on the connection coefficients $c_{n,k}$ given by $R_n = \sum_{k=0}^{n} c_{nk} P_k$, for the existence of such an embedding or isomorphism are given. These results are also applied to obtain amenability properties of the l^1-algebras induced by Bernstein-Szegő and Jacobi polynomials.
The previous related investigations can be found in *W. R. Bloom* and *M. E. Walter*'s work [J. Aust. Math. Soc., Ser. A 52, No. 3, 383–400 (1992; Zbl 0776.43001)], which was only concerned with the isometric isomorphisms of hypergroups. For more recent works, see *R. Lasser*'s articles [Stud. Math. 182, No. 2, 183–196 (2007; Zbl 1126.43003); Colloq. Math. 116, No. 1, 15–30 (2009; Zbl 1167.43007)], which studied the amenability of l^1-algebras of polynomial hypergroups.

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∗43A62 Hypergroups (abstract harmonic analysis)
43A22 Homomorphisms and multipliers of function spaces on groups, etc.
43A20 L1 algebras on groups, etc.
46H20 Structure and classification of topological algebras