

ON THE SCHWARTZ CORRESPONDENCE FOR SPHERICAL TRANSFORMS ON GROUPS OF POLYNOMIAL VOLUME GROWTH

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ABSTRACT. For a Gelfand pair (G, K) with G a Lie group of polynomial growth, the notion of Schwartz space is quite natural, both on G and on the Gelfand spectrum.

It is a general fact (Martini) that the inverse spherical transform maps Schwartz functions on the spectrum to Schwartz functions on the group. To establish the reverse property is a very delicate problem. Nonetheless, it has been proved for many “nilpotent” pairs, i.e., with G/K a nilpotent group (Astengo, Di Blasio, Fischer, Yakimova + R.) and no negative example has been met so far.

In this talk we present recent progress on this topic, concerning non-nilpotent pairs. This is joint work with F. Astengo and B. Di Blasio.