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Abstracts of Short Communications and Posters

Section:

7. Lie Groups and Lie Algebras

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Invariant Eigendistributions on $U(1,2)/(U(1,1) \times U(1,1))$
Let $X = G/H$ be a reductive summetric space, X' the set of all regular semisimple elements in X. An H-invariant Schwartz distribution on X is said to be an invariant eigendistribution (=IED) or a spherical distribution, if it is an eigendistribution of every invariant differential operator. An IED is necessarily real analytic on X'. In the case of $X = R = (R \times R)/R, IED$'s are exactly $exp(xz)$'s, so IED's should be fundamental constituents in the harmonic analysis on a reductive summetric space.
Our present aim is to determine IED's on $X = U(2,2)/(U(1,1) \times U(1,1))$ as explicitly as possible. We will first establish matching conditions for an IED, between adjacent Cartan subspaces. Then, on X', we will express IED's explicitly in terms of solutions of a hypergeometric differential equation. (Joint work with Suehiro Kato)