Analysis related to Jacobi expansions

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ABSTRACT. In the talk we study fundamental operators in harmonic analysis related to Jacobi expansions, including Riesz transforms and the Jacobi-Poisson semigroup maximal operator. We derive a suitable integral representation for the Jacobi-Poisson kernel. As a consequence, we can prove that the operators mentioned above are Calderón-Zygmund operators associated with the corresponding space of homogeneous type, and hence their mapping properties follow from the general theory. Moreover, we show that the Jacobi-Poisson kernel representation also leads to sharp estimates of this kernel.

The talk is based on the recent papers [1] and [2].

References

[1] A. Nowak, P. Sjögren, *Calderón-Zygmund operators related to Jacobi expansions*, J. Fourier Anal. Appl. 18 (2012), 717–749.

[2] A. Nowak, P. Sjögren, T.Z. Szarek, *Analysis related to all admissible parameters in the Jacobi setting*, preprint 2012. `arXiv:1211.3270`