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*On local Arthur packets and unitary dual of classical groups*

Recently, Tadić classified the unitary dual for representations of corank at most 3 of classical groups over p-adic fields. Based on the classification, he conjectured that a representation of critical type is unitary if and only if it is of Arthur type, and that any isolated representation in the unitary dual is of critical type. These conjectures indicate that representations of Arthur type form an important subset inside the whole unitary dual.

Jointly with A. Hazeltine, D. Jiang, B. Liu and Q. Zhang, we proposed a refinement of Tadić's conjecture: A representation of good parity is unitary if and only if it is of Arthur type. Moreover, we gave a conjectural description of the whole unitary dual for classical groups. In this talk, I will introduce these two conjectures, discuss their applications, and present our main result that they hold for representations of corank at most 3 of symplectic and split special odd orthogonal groups.