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Proving the Enhanced Shahidi Conjecture for Real Groups.

For a real group G, it follows from the work of Kostant and Vogan that the L-packet associated with an L-parameter ϕ contains a generic representation if and only if the corresponding $\check{G}$-orbit in the variety of geometric parameters is open.

In this talk, we prove an analogous criterion for Adams–Barbasch–Vogan micro-packets: the micro-packet attached to ϕ contains a generic representation precisely when the associated orbit is open. As an application, we establish the Enhanced Shahidi Conjecture for real groups, showing that the Arthur packet attached to an A-parameter ψ contains a generic representation if and only if the restriction $\psi|_{\mathrm{SL}_2}$ is trivial.

Micro-packets are defined in terms of characteristic cycles of D-modules. To establish our result, we explicitly compute these characteristic cycles in the case of D-modules associated with generic representations. We do this by exploiting the existence of a Weyl group action on both the domain and the codomain of the characteristic cycle map, which makes this map equivariant.