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David Vogan* (dav@math.mit.edu). *What's special about special?* Preliminary report.

Around 1978, Lusztig's investigations of the representations of finite Chevalley groups led him to single out a class of Weyl group representations he called *special*. The corresponding set of unipotent classes is also called *special*. These unipotent classes arise also in representation theory over any local field. The main result over \mathbb{R} says that *any representation of a real reductive group having integral infinitesimal character gives rise to a special unipotent class*.

In 2018 Meinolf Geck gave a conjectural characterization of special unipotent classes by an integrality criterion, which I will recall. Geck's conjecture was established in 2019 by Junbin Dong and Gao Yang. The point of this talk is to pose the question: can the result above (connecting integral representation theory over \mathbb{R} to special unipotent elements) be directly established using Geck's conjectural characterization of special? (Received January 20, 2020)