1148-22-218 **Jeremy T Tyson*** (tyson@illinois.edu). *Polarizable Carnot groups.*

By a classical result of Folland, the fundamental solution for the sub-Laplacian on the Heisenberg group $\mathbb{H}^n$ is a multiple of N^{2-Q}, where N denotes the Korányi norm and $Q = 2n + 2$. Capogna–Danielli–Garofalo later observed that a similar conclusion holds for the p-sub-Laplacian for every $1 < p < \infty$: the fundamental solution is a multiple of $N^{(p-Q)/(p-1)}$ (or $\log(1/N)$ when $p = Q$). Polarizable groups are the largest class of Carnot groups equipped with a similar one-parameter family of fundamental solutions for the p-sub-Laplacians, all defined in terms of a fixed homogeneous norm. These groups also support a polar coordinate decomposition with horizontal radial curves. I will discuss various topics in the setting of polarizable Carnot groups, including explicit sharp constants in Moser-Trudinger and Hardy inequalities, explicit formulas for the moduli of spherical rings and systems of measures, and extremal quasiconformal mappings. Kaplan's H-type groups are polarizable, but there exist non-polarizable step two Carnot groups. Barilari–Rizzi (2018) introduced generalized H-type groups in their study of the measure contraction property. We conjecture that the only polarizable generalized H-type groups are the original H-type groups of Kaplan. (Received February 03, 2019)