1135-58-2268 **Melanie Pivarski*** (mpivarski@roosevelt.edu), Mailstop AUD 402, 430 S Michigan Ave, Chicago, IL 60605. *Gradient bounds of heat kernels in the setting of local Dirichlet spaces as co-compact covers of finitely generated polynomial growth groups.* Preliminary report.

In 2004, Dungey proved spatial gradient bounds on heat kernels of co-compact covering manifolds of finitely generated polynomial growth groups. This result is expanded to the local Dirichlet space setting when the space is complete and satisfies a small number of local geometric assumptions: a local Poincaré inequality, local volume doubling, and boundedness of balls of a fixed radius. The proof combines techniques from Coulhon and Duong with heat kernel bounds from Pivarski and Saloff-Coste. (Received September 25, 2017)