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Phillip R Wesolek* (pweso13@uic.edu), MSCS UIC 322 SEO 851 S. Morgan Street, Chicago, IL 60607. *Constructible totally disconnected locally compact Polish groups and an application.*

The class of constructible totally disconnected locally compact (t.d.l.c.) Polish groups is the collection of t.d.l.c. Polish groups built from profinite and discrete groups via group extension and countable increasing union. These groups appear often in the study of t.d.l.c. Polish groups. We show this class satisfies surprisingly robust closure properties. We go on to give an application to the study of p-adic Lie groups. In particular, we show every p-adic Lie group decomposes into constructible and topologically simple groups via group extensions. This result is analogous to the solvable by semi-simple decomposition for connected Lie groups. (Received December 02, 2013)