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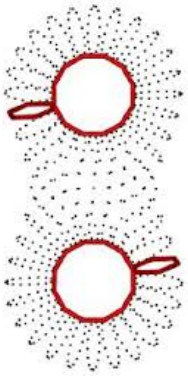

Topology Seminar at Texas State

Friday, 2019, April 19, 11:00-11:50 a.m., in DERR 333

Speaker: Dr. Weam Al-Tameemi

Topic: *Semi-direct Products in Polish Groups*

ABSTRACT

The research interests of topological groups range over all aspects of modern-day topology and algebra. For example, the methods introduced in this presentation is a combination of descriptive set theory on Polish groups and some results from group actions. For example, is there a semidirect product R^n x G(n), where G(n) is one of the following Polish groups?

1. GL(n, R) = {A ∈ M(n, R) : det (A) ¹ 0}, or
2. SL (n, R) = {A ∈ GL(n, R) : det (A) = 1}, or
3. |SL(n,R)| = {A ∈ GL(n, R) : |det (A)| = 1}, or
4. GL+(n, R) = {A ∈ GL(n, R) : det (A) > 0}.

We say that a Polish group G is an algebraically determined if given any Polish group L and an algebraic isomorphism φ : L → G, then φ is a topological isomorphism.

In this direction the results of the work on the semidirect product R^n x G(n) can also be generalized to different semidirect products constructed from groups of special interest. The key to such problems is to determine which sets in a Polish group are definable both algebraically and topologically.