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Joseph Evan* (josephevan@kings.edu), Department of Mathematics, King's College,
Wilkes-Barre, PA. *Subgroups in a Direct Product that Satisfy the Strong Frattini Argument.*

This talk is part of the continuing project of examining subgroup properties in direct products of groups. This project is in some way motivated by the well known characterization of normal subgroups of direct products which states that a subgroup N of a direct product $G_1 \times G_2$ is normal if and only if for $i = 1, 2$, we have $\pi_i(N)/(N \cap G_i) \leq Z(G_i/(N \cap G_i))$ where π_i is the natural projection of $G_1 \times G_2$ onto G_i . Our goal is then to obtain insightful results, and ideally nice characterizations of other subgroup properties in direct products.

In this talk, we will explore subgroups of direct products that *satisfy the strong Frattini argument*. A subgroup U of a finite group G *satisfies the Frattini Argument* in G if for all normal subgroups K of G , we have $G = KN_G(U \cap K)$. A subgroup U of a finite group G then *satisfies the strong Frattini argument* in G if it satisfies the Frattini argument in every subgroup of G in which it is contained. (Received September 21, 2006)