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Juanita Pinzon-Caicedo* (jpinzon@ncsu.edu) and **Matthew Hedden**. *Operations of Infinite Rank in Concordance*.

Oriented knots are said to be concordant if they cobound an embedded cylinder in the interval times the 3-sphere. This defines an equivalence relation under which the set of knots becomes an abelian group with the connected sum operation. The importance of this group lies in its strong connection with the study of 4-manifolds. Indeed, many questions pertaining to 4-manifolds with small topology (like the 4-sphere) can be addressed in terms of concordance. A powerful tool for studying the algebraic structure of this group comes from satellite operations or the process of tying a given knot P along another knot K to produce a third knot $P(K)$. In the talk I will describe how to use $SO(3)$ gauge theory to provide a general criterion sufficient for the image of a satellite operation to generate an infinite rank subgroup of the smooth concordance group. (Received September 10, 2018)