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In this talk, I will give an overview of the problems, projects and recent advances related to the NSF-funded Focused Research Group "Affine Schubert Calculus: Combinatorial, geometric, physical, and computational aspects". This project concerns the development of a vast extension of Schubert calculus to affine Grassmannians and affine flag varieties, called "affine Schubert calculus". The full development of affine Schubert calculus will solve long-standing open problems in Macdonald theory and have an impact on physical questions, such as generalizations of Wess-Zumino-Witten conformal field theory models and extensions of Calogero-Sutherland quantum mechanical models whose eigenfunctions are k-Schur functions. (Received March 10, 2008)