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Abstract for an Invited Paper for the FWS19 Meeting of the American Physical Society

Advancing our Understanding of the Universe through Team Science Engineering PATRICIA R. BURCHAT, Stanford University

If you want to go fast, go alone. If you want to go far, go together. This proverb emphasizes the strength of communities working together, and is increasingly relevant to scientific discovery. Some advances in physics are made by individuals or small groups, but many major recent discoveries could only have been made through collaborations that bring together diverse strengths and skills.

In this presentation, I will use my own experience in large collaborations to illustrate the breadth of opportunities that modern team science provides. I will focus on one particular project the Large Synoptic Survey Telescope, which is now under construction by an international team of scientists and engineers to produce the deepest-ever census of the Universe. Ill discuss the role of the associated Dark Energy Science Collaboration, which I help lead in preparing to use this trove of images to better understand the fundamental nature of the mysterious effect we call dark energy. I will conclude by describing how students with diverse training can contribute to modern team science, and how I incorporate going far together in my own teaching of physics courses.