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A Perspective on the Art of Mega Physics Progress and the Future of International Science

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Physics enters the new century in hot pursuit of a number of major discoveries that could forever change our understanding of core areas of physics and even start new ones. It is increasingly so that addressing the frontiers of physics requires facilities that both push the frontiers of measurement science and push the capacity of national programs to finance. Fortunately, most subfields have not reached this limit; but what is often referred to as “Mega Science” is now a fact of life for an increasing number of key scientific questions. This talk will discuss some of the current ongoing efforts in the realm of “Mega Physics,” first in terms of their intellectual goals, followed by a look at the unprecedented challenges attendant to successfully carrying out these complex and costly scientific campaigns. Some reflections on the art of “Mega Physics Projects” will be offered, including fitness factors to look for and failure modes to avoid in the future.