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Robert R. Wilson Prize for Achievement in the Physics of Particle Accelerators Talk

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The 1982 Design Luminosity Requirement for the Tevatron Collider luminosity was 10^{30} cm^{-2} s^{-1}. At the time this seemed like an ambitious goal because the uncompleted Tevatron would be the first superconducting synchrotron, the anti-proton source design was an ambitious two ring design, which many wise people thought was too complicated, magnetic field of the low beta quads was at the limit of superconducting wire performance and a thin rod of lithium carrying a mega-amp was the first anti-proton collection lens. The highest luminosity achieved in the first run of the Tevatron, as a Collider in 1987, was only 3x10^{29} cm^2 s^{-1}. Nevertheless, the original goal of 10^{30} cm^{-2} $s^{-1}$was reached and then exceeded in the next two years and the luminosity goals were set higher. Twenty years later, the peak Tevatron collider luminosity in the two interaction regions is typically 3x10^{32} $cm^{-2}s^{-1}$. This lecture will trace the nearly thirty year campaign of improvements that led to the current performance.