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Title: *The higher codimension positive energy theorem*

Abstract: In 2012, Hijazi et al. showed that any compact initial data set satisfying the dominant energy condition (DEC) in a pseudo-Riemannian spacetime must obey the inequality $E_t \geq |P_A|$, i.e. the total energy is no less than the magnitude of the momentum. Building on this result, this talk presents a generalization of the Positive Energy Theorem to asymptotically Euclidean initial data sets embedded as submanifolds of codimension greater than one. To set the stage, I will first review the necessary background, including Witten's spinorial proof of the positive energy theorem in the classical codimension-1 setting. I will then explain how these spinorial methods can be extended to the higher-codimension case, ultimately establishing the analogous positive energy inequality in that setting.