1167-42-270 **Laura T Cladek*** (laura.cladek.math@gmail.com), 520 Portola Plaza, Los Angeles, CA 90066, Los Angeles, CA 90066, and **Terence Chi-Shen Tao** (tao@math.ucla.edu), 520 Portola Plaza, Los Angeles, CA 90066, Los Angeles, CA 90066. *Additive energy of regular measures in one and higher dimensions, and the fractal uncertainty principle.*

We obtain new bounds on the additive energy of (Ahlfors-David type) regular measures in both one and higher dimensions, which implies expansion results for sums and products of the associated regular sets, as well as more general nonlinear functions of these sets. As a corollary of the higher-dimensional results we obtain some new cases of the fractal uncertainty principle in odd dimensions. (Received March 08, 2021)