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**Casey Jao\*** ([cjao@math.berkeley.edu](mailto:cjao@math.berkeley.edu)). *Microlocal dispersive estimates and the energy-critical NLS on perturbations of  $\mathbf{R}^3$ .*

It is well known that solutions to the linear Schrödinger equation in  $\mathbf{R}^d$  decay in time at a rate of  $t^{-d/2}$ . This is in general false on a curved background due to refocusing of geodesics. However, as shown by Burq, Gérard, and Tzvetkov, it holds microlocally provided one restricts to times less than a sufficiently small multiple of the semiclassical parameter, essentially stopping the geodesic flow before refocusing can occur. I will discuss long-time refinements of this estimate which exhibit weaker but still nontrivial decay. Such weak dispersive estimates play an essential role in the study of energy-critical NLS on manifolds. Time permitting, I will specifically consider the quintic NLS on small perturbations of  $\mathbf{R}^3$ . (Received September 12, 2016)