Entanglement production at Instabilities LUCAS HACKL, EUGE-
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ties play a major role in various areas of physics. In this talk, I will present some new
results on how instabilities produce entanglement between subsystems. We study
the asymptotic behavior of the entanglement entropy when we evolve a squeezed
vacuum with an unstable quadratic Hamiltonian. We show that in this setting the
entanglement entropy always grows linearly with a slope determined by the classical
Lyapunov exponents of the system, resembling the classical Kolmogorov-Sinai en-
tropy rate. Our theorem applies to all bosonic quantum field theories with quadratic
coupling, including the scalar Schwinger effect, the inverted mass scalar field and
various complex field theory models.

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Date submitted: 08 Jan 2016   Electronic form version 1.4