1131-37-132 **Boris Kalinin*** (kalinin@psu.edu) and **Victoria Sadovskaya** (sadovskaya@psu.edu). *Normal forms for non-uniform contractions.*

Let f be a measure-preserving transformation of a Lebesgue space (X, μ) and let F be its extension to a bundle $E = X \times \mathbb{R}^m$ by smooth fiber maps $F_x : E_x \to E_{fx}$ so that the derivative of F at the zero section has negative Lyapunov exponents. We construct a measurable system of smooth coordinate changes H_x on E_x for μ-a.e. x so that the maps $P_x = H_{fx} \circ F_x \circ H_x^{-1}$ are sub-resonance polynomials in a finite dimensional Lie group. Our construction shows that such H_x and P_x are unique up to a sub-resonance polynomial. As a consequence, we obtain the centralizer theorem that the coordinate change H also conjugates any commuting extension to a polynomial extension of the same type. We apply our results to a measure-preserving diffeomorphism f with a non-uniformly contracting invariant foliation W. We construct a measurable system of smooth coordinate changes $H_x : W_x \to T_xW$ such that the maps $H_{fx} \circ f \circ H_x^{-1}$ are polynomials of sub-resonance type. Moreover, we show that for almost every leaf the coordinate changes exist at each point on the leaf and give a coherent atlas with transition maps in a finite dimensional Lie group. (Received July 10, 2017)