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Sebastian Donoso, Andreu Ferre Moragues, Andreas Koutsogiannis and Wenbo Sun*
(swenbo@vt.edu), 109 Kinloch Dr, Blacksburg, VA 24060. *Joint ergodicity conjecture for systems with commuting transformations.*

It is well known by the Mean Ergodic Theorem that for any measure preserving system (X, \mathcal{B}, μ, T) and L^∞ function f , the time average of $T^n f$ converges to the integral of f if and only if T is ergodic. It is a natural question to ask when the average of products of polynomial iterates of L^∞ functions (known as multiple ergodic averages) converges to the product of the integrals of the functions. This question is called the Joint Ergodicity Problem. In this talk, I will introduce some recent advances in this problem. This talk is based on joint works with Sebastian Donoso, Andreu Ferre Moragues and Andreas Koutsogiannis. (Received January 19, 2022)