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Evolution of exterior products in dynamics

The evolution of differential k -forms has proved to be a versatile tool in dynamical systems. It facilitates the investigation of local and global properties as well as steady state behaviour; topics such as existence and stability of periodic orbits and questions of dimension of invariant sets such as global attractors. This approach is taken by Temam in the treatment of evolutionary partial differential equations in a Hilbert space setting. The main tools in finite dimensional dynamics have been multiplicative and additive k -compound matrices whose algebraic, metric and spectral properties have provided important insights. This presentation will report on joint work with Qian Wang on the extension of the concept of these compound operators to an infinite dimensional setting.