YUMING CHEN, Wilfrid Laurier University

An algebraic approach to determining negative (semi-)definiteness in applying the Lyapunov direct method

In this talk, we first present a novel approach in determining the specific form of a Lyapunov function when the type of its candidate is given. Then we apply this approach to autonomous polynomial differential systems. Applications to some epidemic models described by polynomial differential systems indicate that the discussion on global stability can be greatly simplified.