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Global dynamics of a Filippov SIQR model with delayed control

In this talk, I will discuss the global dynamics of a Filippov SIQR epidemic model incorporating delayed relay control. We show that the introduction of delay can induce periodic behavior, including the appearance of slowly oscillating periodic orbits. By combining analytical tools such as Poincaré maps, displacement functions, and a Melnikov-like method, we establish sufficient conditions for the existence, uniqueness, and global stability of slowly oscillating periodic solutions.