

**SIMULTANEOUS SHRINKING TARGET PROBLEMS  
FOR THE DYNAMICAL SYSTEMS  $X_2$  AND  $X_3$**

**Speaker: Professor Bing Li**  
**South China University of Technology**

**Time: Thursday, November 26, 2020, 16:00-17:00**

**Tencent room: 264 427 510**

**Abstract:** Let  $T_2$  and  $T_3$  be the  $\times 2$  and  $\times 3$  transformations on the unit interval  $[0,1]$  respectively. We study the points whose orbits under these two dynamical systems approach given points simultaneously. Precisely, for some positive functions  $\varphi, \psi : \mathbb{N} \rightarrow \mathbb{R}_+$ , for any  $y_1, y_2 \in [0,1]$ , the Lebesgue measure and Hausdorff dimensions of the set

$$\{x \in [0, 1) : |T_2^n x - y_1| < \varphi(n), |T_3^n x - y_2| < \psi(n) \text{ for infinitely many } n\}$$

are determined. This is a joint work with Lingmin Liao, Sanju Velani and Evgeniy Zorin.