



Department of Mathematics

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DEPARTMENT OF MATHEMATICS

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A mathematical theory of microscale hydrodynamic cloaking and shielding using electro-osmosis

by

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Time: 4:00 – 5:00 pm

ABSTRACT

Rendering objects invisible by cloaking them with metamaterials have made rapid progress in the past decade. However, the difficulties of metamaterials manufacturing have limited its development. In this talk, we discuss the mathematical analysis of hydrodynamic cloaking and shielding via electro-osmosis in a microfluidic chamber that does not rely on metamaterials. Based on layer potential technique, the conditions that can ensure the occurrence of the microscale hydrodynamic cloaking and shielding are established. Finally, several numerical examples are served to validate our theoretical analysis. (This talk is based on joint works with Zhiqiang Miao (HNU), and Hongyu Liu (CityU))

Zoom Link: <https://cityu.zoom.us/j/92523669881?pwd=NDBheFVDdi80amhSU0IxbXNtcVVvUT09>

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