第１回

数理科学コロキウム

（第１９回　数学連携サロン）

北海道大学大学院
理学研究院数学部門

日時　平成21年12月21日（月曜日）16時30分〜18時30分

場所　北海道大学大学院理学研究院　理学部3号館3-205号室

講演者　Prof. Darren Crowdy (Imperial College London, United Kingdom)

第一部　（16時30分〜17時20分）

Solving problems in multiply connected domains

This talk will survey new theoretical methods for solving problems in the applied sciences involving multiply connected regions. The approach advocates the central role played by an important transcendental function, known as the Schottky-Klein prime function,naturally associated with any multiply connected planar domain. A variety of different applications will be discussed.

第二部（17時40分〜18時30分）

A new calculus for two dimensional vortex dynamics

In classical fluid dynamics, an important problem arising in a variety of applications is to understand how vorticity interacts with solid objects (e.g. aerofoils, obstacles or stirrers). For planar flows, a variety of powerful mathematical results exist but the constructions are usually restricted to problems with just one, or perhaps two, objects. The talk will show that there is a way to formulate the theory so that the relevant fluid dynamical formulae are exactly the same irrespective of the connectivity of the domain thereby leading to a flexible "calculus" for solving such problems. The approach is built on the methodologies expounded in the first talk. This application represents just one physical example where methods based on the Schottky-Klein prime function can be profitably employed.

本コロキウムは応用数学の先端研究を幅広く紹介するために開催されます。第一部では一般的な話題を第二部では専門的な話題を提供していただきます。本コロキウムは数学研究連携センター(RCIM)との共催です。