WICHITA STATE UNIVERSITY

Department of Mathematics, Statistics & Phy7.6 (P)emaixed

ch number increases. Such

a Brownian particle from a

z_0 in a planar domain C. What is the chance, denoted $h_{,z_0}(r)$, that the particle's first exit from occurs within a fixed distance $r > 0$ of z_0? The function of r suggested by this question, denoted $h_{,z_0}:[0,) [0,1]$, is called the harmonic measure distribution function, or h-function, of with respect to z_0. We can think of the h-function as a signature that encodes the geometry of the boundary of . In the language of PDEs, the h-function can also be formulated in terms of a suitable Dirichlet problem on . For simply connected domains, the theory of h-functions is now quite well developed and several explicit results are known. However, until recently, for multiply connected domains the theory of h-functions has been almost entirely out of reach.

The special function theory employed when solving the two aforementioned problems is centered around the so-called Schottky-Klein prime function, a special transcendental function which plays a central role in problems involving multiply connected domains (i.e. domains with multiple boundary components). Despite this, it has been scarcely used - until relatively recently - by both pure and applied mathematicians since it was originally written down (independently by both Schottky and Klein towards the end of the 19th century).

Friday, September 21, 2018
3:00 PM in 372 Jabara Hall

Please come join us for refreshments before the lecture at 2:30 p.m. in room 353 Jabara Hall.