

MA4198 PROJECT PROPOSAL (PROJECT CUM SEMINAR GROUP)

SUPERVISOR'S INFO

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PROJECT ID: PS2610-09

TITLE

Theory of Harmonic Functions

BRIEF DESCRIPTION OF PROJECT

Harmonic functions are multi-variable generalizations of analytic functions in one or two dimensions. They also show up naturally in a wide variety of topics, for instance, the study of diffusion processes and geometric analysis.

In this project, we will explore some basic properties of harmonic functions. In the process, we will see how to extract qualitative and quantitative information from a differential equation.

EXPECTATION/S

The students are expected to follow the theory developed in the reference, and to write a review article.

PREREQUISITE/S (at level 3000 or below, with at most one course at level 3000)

MA2108, MA3220

READING REFERENCE/S

Harmonic Function Theory by Axler, Bourdon and Ramey