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# Non-standard Hypotheses in Directional Statistics

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**Note : This seminar will be accessible to any (under)graduate student with basic probability and statistics background. All welcome!**

## Abstract

*The data is normally distributed, All individuals are independent and identically distributed, All variances are the identical,* are all statements written in small at the beginning of the description of many statistical procedures. But what if they are not true?

Both mathematical statisticians and practitioners have begun to realise that many of the basic assumptions made when using statistics were often not true in practice, possibly rendering results invalid. New, more robust methods have been developed to counter these issues, and scientists are starting to be more aware of their existence, and when (not) to use them. Unfortunately, the more specific the framework, the less this is the case. Directional statistics, the subfield of statistics focused on data residing on (hyper)spheres, still suffers from this problem.

In this talk, we will first discuss the idea of relaxing hypotheses in classical statistics, and then introduce the field of directional statistics. We will then consider alternatives to rotational symmetry and consistent identification of parameters. We will finally briefly discuss ongoing research on the subject, that is actively worked on in this department

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