



ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ

ΤΜΗΜΑ ΜΑΘΗΜΑΤΙΚΩΝ



Εβδομαδιαίο Σεμινάριο

# TESTING THE SYMMETRY AND MEASURING THE ASYMMETRY OF CONTINUOUS PROBABILITY DENSITY FUNCTIONS

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It is a common practice to make assertions about the symmetry or asymmetry of a probability density function (pdf) based on the coefficients of skewness. Since most of the coefficients of skewness are designed to be zero for a symmetric density, they do, overall, provide an indication of symmetry. However, skewness is primarily influenced by the tail behavior of a density function, and the skewness coefficients are designed to capture this behavior. Therefore, they do not calibrate asymmetry in the density curves. Further, when it comes to bivariate pdf, the calibration of the size asymmetry becomes more difficult because of the many different concept of bivariate symmetries. Therefore this talk, by taking a fresh look at testing symmetry and quantifying asymmetry in a pdf (univariate or joint), is aimed at identifying the necessary or necessary and sufficient condition(s) for symmetry which

- i) can be used to quantify the size of asymmetry,
- ii) can be used to develop tests of symmetry whose power is a function of the size of asymmetry, and
- iii) are defined in such a way that their main concept remains the same irrespective of whether it is univariate symmetry or any of the various bivariate symmetries.

Τετάρτη 28 Σεπτεμβρίου 2022, 18:00

Αίθουσα 001 Τμήματος Μαθηματικών

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Μετά την ομιλία ακολουθεί καφές και συζήτηση στο εντευκτήριο του Τμήματος