PUBLIC SELECTION BASED ON QUALIFICATIONS AND INTERVIEW FOR THE AWARDING OF NO. 1 GRANT LASTING 12 MONTHS FOR CONDUCTING RESEARCH IN ACCORDANCE WITH ART. 22 OF LAW OF 30.12.2010 NO. 240 AT THE DEPARTMENT OF MANAGEMENT, INFORMATION AND PRODUCTION ENGINEERING OF THE UNIVERSITY OF BERGAMO (ACADEMIC RECRUITMENT FIELD 01/A3 – MATHEMATICAL ANALYSIS, PROBABILITY AND STATISTICS - ACADEMIC DISCIPLINE MAT/05 – MATHEMATICAL ANALYSIS, FUND DIFIPFUTURMAN.

announced with decree of the Rector Rep. no. 292/2017 of 19.05.2017 and posted on the official registry of the University on 19.05.2017

RESEARCH PROJECT

"Lattice point discrepancy"

Classic discrepancy theory deals with the problem of placing points in some space, in such a way that they are well distributed with respect to a given class of subsets. The ideal situation would be that each set of the class contains a number of points proportional to its measure. This isn't in general possible, and therefore the theory's goal consists in estimating precisely the discrepancy, i.e. the difference between the measure of the set and the ratio of points contained in the set. Estimates of the discrepancy are essential in numerical approximation of integrals. The circle problem consists in comparing the number of integer points in the plane contained in a circle with the area of the circle. We are interested in average estimates of this discrepancy , where the average is evaluated as the center and the radius of the circle vary. We also want to consider more general cases, where the circle is replaced by the sphere or other ovals in higher dimensions.