PhD research topic proposal

BME, Doctoral School of Mathematics and Computer Science

Name of supervisor :

Lajos Rónyai

Degree:

Member of HAS

Title of the topic:

Algebraic methods in computer science

Short description:

Algebraic tools and techniques have proved to be very efficient in the study of some problems of discrete mathematics and computer science. Particularly interesting are here the explicit constructions of algebraic nature. As examples, one can mention notable error correcting codes, such as Reed-Solomon codes. Some cryptographic techniques (such as ElGamal encryption, Diffie-Helmann key exchange, or ECC) also involve algebraic ideas. Algebraic methods have led to important constructions in combinatorics, such as the norm graphs. The main objective of the project would be the study and development of constructive applications in the spirit of the above examples. From this very wide area we could select specific topics according to the interest and background of the student. There are important theoretical problems as well as questions close to computational applications.

Requirements:

MSc in Mathematics

Contact:

Phone:

E-mail:

pinter@math.bme.hu

Place of work:

BME, Department of Algebra

Statement*: The conditions of the research above are satisfied, the theme is confirmed by the Head of the Department/Institute*