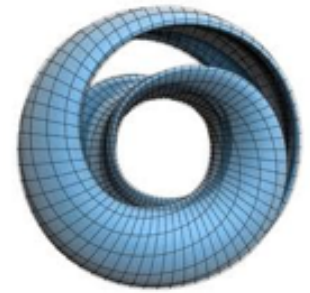


Thursday
Nov 15, 2012
12:30 pm
UC 307



(Refreshments at 12:15pm)

UCCS Math Colloquium
Presents:

Dr. Muge Kanuni Er
Boğaziçi University - Istanbul, Turkey
Visiting Fullbright scholar at UCCS

Incidence Algebras for Everyone

Abstract: In his seminal paper of 1964, "On the foundations of combinatorial theory I: Theory of Möbius Functions" Gian-Carlo Rota defined an incidence algebra as a tool for solving combinatorial problems. Incidence algebra is a specific ring of functions defined on the ordered pairs of a given partially ordered set to a given ring, moreover incidence ring is equipped with a module action by this ring. Möbius function is an element of an incidence algebra, besides with the appropriate choice of the partially ordered set, Möbius function of this incidence algebra coincides with the well-known Möbius function of number theory. A product of copies of a ring and upper triangular matrices are typical examples of incidence algebras.

In the following papers of Rota with his co-authors, and papers of other contemporary authors incidence algebras are investigated as an algebraic object, as a topological algebra, as a homological object, as a tool in algebraic topology. Incidence algebras are used in the study of generating functions. Incidence algebras over pre-ordered sets and co-algebra structures on incidence algebras are also studied.

After a general view of the above research, I will peek into what incidence algebras are for me.