Thursday, May 24th 2007

At 2:00 PM in Room AAC 006

To be followed by discussion;

“Fullerenes: Applications and Generalizations”

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Target audience: doctoral students, researchers and Professors in Mathematic.

Abstract:

Since the discovery of molecule of C60 (truncated icosahedron), the fullerenes, i.e. simple polyhedra with only pentagonal and hexagonal faces, became the main object in Organic Chemistry; the synthesis of C60 was marked by the Nobel prize 1996.

We present fullerenes from their origins (isoperimetric problem in M. Golgberg's paper 1933) till their modern use in Chemistry, Virology, Architecture etc.

We review some generalizations and relatives of them, including:

1) analogues on surfaces;
2) icosahedral polyhedra with only pentagonal and m-gonal faces;
3) plane partitions with only pentagonal and hexagonal faces;
4) tetrahedral close packings of 3-space by four Frank-Kasper polyhedra (t.c.p. phases of metallic alloys).

It will be an expository lecture on new connections of Discrete Geometry and Chemistry.