Přednášky se konají v 17:00 v posluchárně M2 na Janáčkově nám. 2a v Brně, pokud není explicitně uvedeno jinak.

10. října

Prof. RNDr. ing. Lubomír Kubáček, DrSc (Přírodovědecká fakulta PU, Olomouc)
Optimální navrhování experimentu v praxi

31. října

Prof. RNDr. Michal Lenc, CSc (Fyzikální sekce PřF MU)
Matematika na Ústavu teoretické fyziky

28. listopadu

H.P. Gumm (Marburg, Germany)

12. prosince

John Hubbuck (University of Aberdeen, Scotland)
The conjecture of Ganea on Co-H-spaces

Abstrakt:

The calculation of homotopy classes of maps between two spaces X and Y denoted by [X.Y] is at the heart of algebraic topology, where here we preserve a base point. To describe such a set one tries to attach to it a natural algebraic structure. Two classical examples arising in this way are cohomology groups and the classical Hurewicz homotopy groups. The cohomology group structure arises because the cohomology of a space Z is the same as [Z,Y] for a suitable Hopf-space Y. A Hopf space is a space with a continuous multiplication; the standard examples are topological groups or loop spaces. With a little homotopy associativity associated with the multiplication one always obtains a group, without this associativity, an algebraic loop. The dual of a Hopf space is a co-Hopf-space, a space with a co-multiplication. A suspended space X is the most natural example. Again with a degree of associativity on the co-multiplication [X,Z] is a group and provided X is simply connected it is always an algebraic loop.

The Ganea conjecture of 1972 concerned the nature of the space of a (non-simply-connected) co-H-space. Over a decade later it was shown by Hilton, Mislin and Roitberg that the conjecture was in essence the same as asking if [X,Z] always had an algebraic loop structure when X was a co-Hopf-space. In 2001 Norio Iwase published a paper showing that the answer was "no".In this talk I hope to outline the background to the Ganea conjecture and mention more recent joint work with Norio Iwase in establishing where the conjecture is true.