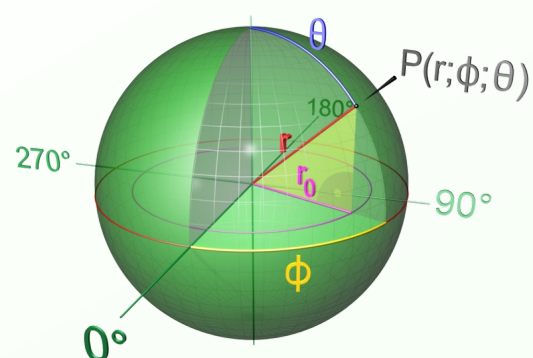


# Georgian-German Noncommutative Partnership

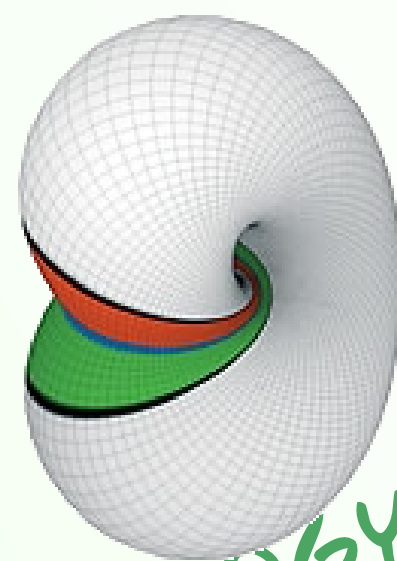


## RESEARCH PROJECT

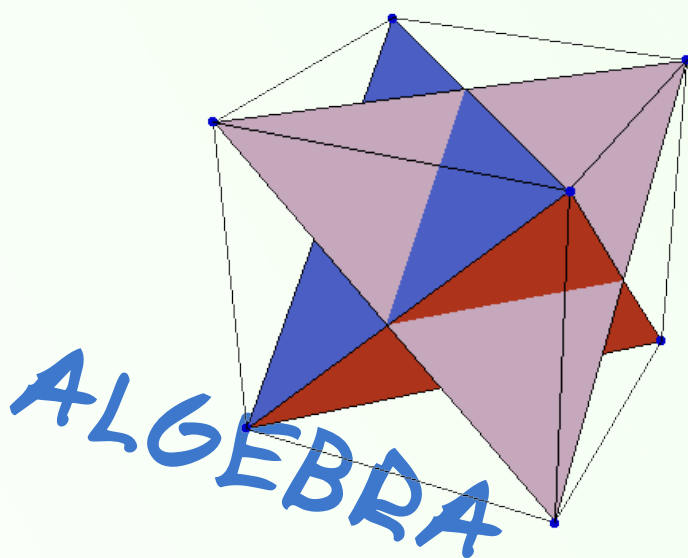
2009—2011

This project supports joint research projects between German and Georgian mathematicians in the areas of topology, geometry, and algebra. We plan to study fundamental questions in K-theory, homotopy theory, non-commutative geometry, and categorical and homological algebra, using, in particular, methods of enriched category theory. More concretely, we study the following topics:

1. smooth K-theory for locally convex algebras
2. the connection between algebraic and topological K-theory and group cohomology
3. equivariant and Hopf-cyclic homology, cohomology of groups
4. spectra characterizing KK-theory
5. applications of derived functors and derived categories to cyclic homology and K-theory
6. structural properties of K-theory of bimonoidal categories
7. formal group laws.



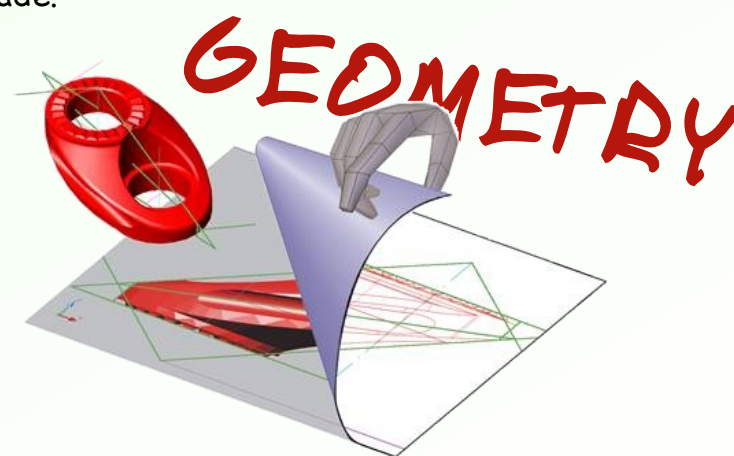
TOPOLOGY



ALGEBRA

Traditionally, Georgia has strong mathematics groups in homotopy theory and algebra. Despite the lack of government funding, it has so far been possible to keep this tradition alive, to the extent that there even still exist international mathematics journals of a high reputation published in Georgia. Here cooperation with researchers in Western and Central Europe has been instrumental. But uncertainty and lack of funding for more than 20 years have forced most talented young mathematicians to give up a scientific career or to pursue it abroad. As a result of this, the mathematical tradition in Georgia is in danger of literally dying out within the next decade.

Therefore, future efforts must concentrate on the education of Georgian PhD students, in order to replace the aging mathematics faculty at Georgian universities and research institutes. Since the unbalanced age distribution seems to be a problem in all of Georgian science, it will be interesting how other sciences are dealing with it.



GEOMETRY

### Contact

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