

CURRICULUM VITAE

Petr Somberg

Name : Petr Somberg

Nationality : Czech Republic

Education :

1977-1985 - Primary school, Kácov, Czech Republic.

1985-1989 - Grammar school - Gymnasium W.Piecka, Prague, Czech Republic.

1989-1994 - Charles University - Faculty of Mathematics and Physics, Prague, Czech Republic.

1994-97 - Postgradual study at the Faculty of Mathematics and Physics, specialization - Geometry and global analysis, Prague, Czech Republic.

2000 - - Research Assistant, Faculty of Mathematics and Physics of Charles University, Prague, Czech Republic.

Military Service :

1997 - 1999 - Military service in the civil sector - network administrator, PC-user support, Faculty of Mathematics and Physics, 18 months.

Teaching Experiences :

Teaching in various areas of Mathematical Analysis, Algebra, Geometry and Topology.

- Mathematical Analysis - basic calculus courses
- Linear Algebra and Geometry
- Differential Geometry of Curves and Surfaces
- Integral Geometry
- Analysis on Manifolds
- Introduction to Lie Group Theory
- Representation theory
- Algebraic Topology

- Algebraic Geometry, Algebraic Geometry in positive characteristic
- Elliptic Curves

during the period 1995-2009. Organization of the seminars "Differential Geometry" and "Harmonic Analysis".

Invitations, longer visits in the near past:

- ESI, Wien, 8/2007.
- University of Auckland, New Zealand, 8+9/2008.

Short description of research interest:

I am interested in the relationship among geometry, abstract representation theory, topology, analysis and its various ramifications, in particular the study of invariant differential operators and all of its consequences. To be more specific, the class of geometries can be described by parabolic invariant theories (parabolic geometries) inside so called Cartan's program. As a main tool, the Bernstein-Gelfand-Gelfand sequences as more effective analogs of de Rham complex are exploited. Various incarnations of these notions in theoretical physics involve AdS/CFT correspondence and holographic principle. Closely related subject is also the representation theory and invariants of finite reflection groups, e.g. the Weyl groups and Dunkl operators for simple Lie algebras.

In addition, I also work in the area of discrete analogs of previously mentioned structures like the discrete conformal structure (and the discrete Dirac operator) closely related to the critical phenomena in combinatorics and statistical physics on Riemann surfaces (e.g. elliptic curves.)