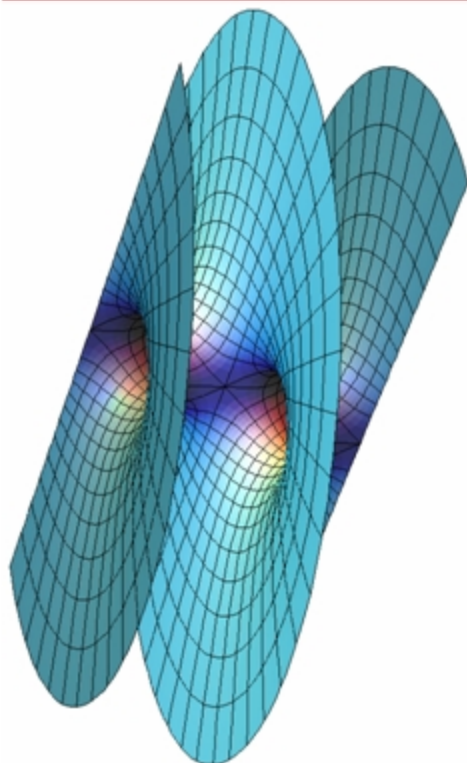


# THE NATIONAL CENTER FOR MATHEMATICS

Invites you to a course on

## Cohomological Techniques in Riemann Surfaces and Sheaves



### Speakers:

- ◆ Dr. Barbu Berceanu
- ◆ Dr. Viorel Vajaitu

### Date:

Feb. 26 - March 3, 2007

### Time:

11:00 AM-12:50 PM  
(daily, except Sunday)

**No Participation  
Fee**

- **Review of Compact Riemann Surfaces**

Definitions, examples and mappings of Riemann surfaces, meromorphic functions and some useful properties.

- **Sheaves, exact sequences and first cohomology group.**

Here we introduce the main cohomological techniques to deal with sheaves. Most applications will be on Riemann surfaces. It includes, for instance the Leray's theorem and the Mittag-Leffler theorem.

- **Vector bundles, line bundles and divisors (on Riemann surfaces).**

Basic facts about vector bundles and line bundles are given. We treat also meromorphic sections with values in vector bundles over Riemann surfaces. Then divisors are considered and Linear equivalence of divisors is discussed.

- **The finiteness theorem.**

We give a proof of the fact that for a compact Riemann surface  $X$  and a holomorphic vector bundle  $V$  over  $X$ , the first cohomology group with coefficients in the sheaf of sections of  $V$  has finite dimension (as complex vector space).

- **The Riemann-Roch theorem (preliminary form).**

- **The degree of the canonical bundle.**

- **The Riemann-Roch theorem (final form). Serre's duality.**

### Recommended Literature:

Otto Forster, Lectures on Riemann Surfaces, Springer-Verlag.

### For Registration:

Send letter of interest and brief CV by e-mail to Mr. AWAIS NAEEM at [awais\\_naeem786@yahoo.com](mailto:awais_naeem786@yahoo.com) latest by Feb 18, 2007.

### VENUE:

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