Daniil RIABKO (ryabko@math.nsc.ru) Department of Mechanics and Mathematics, Novosibirsk State University, Novosibirsk, Russia. ***Functional representation of a Dedekind-complete Riesz space in a Boolean valued universe.*** ***Saturday, 5:10PM, Lower Auditorium***

ABSTRACT. Using a functional model of a Boolean-valued universe, the so-called polyverse, invented by A.E. Gutman and G.A. Losenkov, we introduce the basic notions of infinitesimal analysis within a Boolean-valued universe, thus enriching the synthesis of the two main branches of nonstandard analysis, infinitesimal and Boolean-valued. We apply the results obtained to the theory of Riesz spaces. In particular, the following fact is proven: The inverse of the standard-part function for real numbers in a Boolean-valued universe is an isomorphism between an arbitrary uniformly-complete Riesz space (K-space) and the set Riesz space of reals in the corresponding Boolean-valued universe. This function is also an isomorphism between a Dedekind-complete Riesz space with the strong unit and the set of limited numbers in a Boolean-valued universe. Moreover, using the results obtained we construct a new functional representation for K-spaces, ideals, and order-dense ideals of K-spaces and propose analogs of the basic notions of the theory of Riesz spaces in this new representations. This is a joint work with Alexander Gutman.

David ROBBINS (david.robbins@trincoll.edu), Department of Mathematics, Trinity College, Hartford, CT 06106, USA, ***A note on the space of weakly continuous sections of a Banach bundle.***
Saturday, 4:45PM, Lower Auditorium

ABSTRACT. Let $\pi : \mathcal{E} \to X$ be a real Banach bundle with continuous norm, where X is a compact Hausdorff space and the section space of the bundle admits sufficiently many $C(X)$-homomorphisms into $C(X)$. We study the space of weakly continuous sections of this bundle, considered both as a Banach space and as the space of sections of a bundle of locally convex topological vector spaces. (This is joint work with A. Koptev of the Sobolev Institute, Novosibirsk.)

Richard ROCHBERG (rr@math.wustl.edu), Department of Mathematics, Washington University, St Louis, MO 63130, USA, ***Hankel Forms on the Dirichlet Space and Related Operators.***
Wednesday, 9:00AM, Lower Auditorium

ABSTRACT. Recently Mazya and Verbitsky gave a solution to the following problem. For which complex functions b is it true that there is an estimate of the form $\left|\int_{\mathbb{R}^n} |u|^2\, b\right| \leq c \int_{\mathbb{R}^n} |\nabla u|^2$? $(*)$

The case $n = 1$ is elementary and the case $b \geq 0$ is classical; but the general case involves substantial difficulties. More recently Aleksandrov, Janson, Peller, and I studied the Schatten ideal behavior of the linear operator associated with $(*)$. For those questions even the case $n = 1$ presents difficulties and we were only able to obtain complete results for $p > 1$.

The estimate $(*)$ is analogous to a boundedness statement for Hankel bilinear forms of the Dirichlet space of holomorphic functions on the disk. The discrete model of that situation involves Hardy-type operators on trees, and a number of people have studied boundedness criteria and Schatten ideal behavior of those operators. I will discuss various approaches, results, and questions related to these themes.

Volker RUNDE (vrunde@ualberta.ca), Department of Mathematical and Statistical Sciences, University of Alberta, Edmonton, Alberta T6G 2G1, Canada, ***Abstract harmonic analysis, homological algebra, and operator spaces.*** ***Saturday, 1:30PM, Lower Auditorium***

ABSTRACT. In 1972, B. E. Johnson proved that a locally compact group G is amenable if and only if certain Hochschild cohomology groups of its convolution algebra $L^1(G)$ vanish. Similarly, G is compact if and only if $L^1(G)$ is biprojective: In each case, a classical property of G corresponds to