

# Lie Group and Representation Theory Seminar

Date: September 29 (Mon), 2003, 10:30–11:30  
Place: RIMS Room 402  
Speaker: Yurii A. Neretin (ITEP)  
Title: Structures of boson Fock space in the space  
of symmetric functions

Abstract:

We give explicit realization of Weil representation of infinite-dimensional (Friedrichs–Shale) symplectic group in the space  $\Lambda$  of symmetric functions in infinite number of variables.

For each operator  $\Lambda \rightarrow \Lambda$  we associate a formal series  $K(x_1, x_2, \dots; y_1, y_2, \dots)$  (bisymmetric kernel of operator) symmetric with respect to  $x_j$  and with respect to  $y_j$ . Our representations is realized by operators corresponding to kernels of the form

$$K(x, y) = \prod_{k < l} \left\{ \sum_{i > 0, j > 0} a_{ij} x_k^i x_l^j \right\} \prod_{k, l} \left\{ \sum_{i > 0, j > 0} b_{ij} x_k^i y_l^j \right\} \prod_{k < l} \left\{ \sum_{i > 0, j > 0} c_{ij} y_k^i y_l^j \right\}$$

We also show, that the set of all operators having such kernels is closed with respect to multiplication and describe this semigroup