**Vladimir SHARKO**

**Some aspects of non-commutative topology**

*Abstract:* Non-commutative algebraic topology investigates non-simply connected CW-complexes. An important tools are crossed modules. The purpose of this talk is to demonstrate that crossed modules occur in a very natural setting, namely if $W^n$ is a non-simply connected manifold with a non-simply connected boundary $V^{n-1}$ then the second Morse number $M_2(W^n)$ of $W^n$ can be calculated using the crossed module, relative the second homotopy group.