1046-57-293   **Vladimir Turaev*** (`vtouraev@indiana.edu`). *Certain enumeration problems in 2-dimensional topology.*

We shall discuss a solution to several enumeration problems in the topology of surfaces following my preprint arXiv:0804.1489. A classical theorem of Frobenius and Mednykh counts the number of homomorphisms of the fundamental group of a closed orientable surface to any finite group. This theorem generalizes to an enumeration of homotopy classes of sections of a locally trivial fiber bundle over the surface. In particular, this provides a necessary and sufficient homological condition for the existence of such a section. These results relate topology of surfaces to the theory of projective representations of finite groups. The proofs are based on methods of Topological Quantum Field Theory. (Received August 25, 2008)