Meeting: 1000, Albuquerque, New Mexico, SS 5A, Special Session on Categories and Operads in Topology, Geometry, Physics and Other Applications

1000-18-169   **Zbigniew Oziewicz*** (`oziewicz@servidor.unam.mx`), Universidad Nacional Autonoma de Mexico, Facultad de Estudios Superiores Cuautitlan, Campus 4, Apartado Postal 25, C.P. 54714 Cuautitlan Izcalli, Estado de, Mexico. *Frobenius operad.* Preliminary report.

Several equivalent presentations of the Frobenius operad in a monoidal category are given in terms of the graphical generators and operadic relations: in terms of the four-letters biunital convolution alphabet, and in terms of the Reidemeister zero moves (the closed/pivotal structure). The Frobenius operad is contrasted with bialgebra operad, and is compared with separability axioms and with Azumaya algebra. We show what extra axiom is needed that Frobenius operad is Clifford/canonical. Frobenius operad gives rise to the Artin braid/Reidemeister III/quantum Yang-Baxter - this is an operadic/graphical version of the Beidar, Fong and Stolin result [Transactions of AMS vol. 349 (9) (1997) 3823-3836]. A trace class model of the Frobenius operad (Frobenius coalgebra versus Frobenius algebra) generated by idempotents is considered in some details. (Received August 23, 2004)