1150-53-397 **Alexander Karabegov*** (axk02d@acu.edu), Department of Mathematics, 161C Onstead Science Center, Abilene Christian University, Abilene, TX 79699, and **Hovhannes Khudaverdian**. *On a category of formal differential mappings.*

Formal oscillatory integrals (FOIs) are a certain class of formal distributions supported at a point of a manifold. A FOI is modeled on the formal asymptotic expansion of an oscillatory integral with a single nondegenerate critical point of the phase function. A FOI is given by algebraic axioms in terms of a phase-density pair which determines it. We give a criterion which determines whether a formal distribution supported at a point is a FOI and explain how to recover a phase-density pair that determines this FOI. We extend the notion of a formal oscillatory integral supported at a point to a mapping between spaces of formal functions on manifolds. These mappings are not closed under composition, but we describe a category of "formal differential mappings" whose class of morphisms contains these mappings. We discuss relation with "quantum microformal morphims" introduced earlier by Th. Voronov. (Based on work in progress with H. Khudaverdian.) (Received July 15, 2019)