1084-16-326 **Vladimir Bavula*** (v.bavula@sheffield.ac.uk), Department of Pure Mathematics, University of Sheffield, Hounsfield Road, Sheffield, S3 7RH, United Kingdom. *An analogue of the Dixmier Conjecture is true for the algebra of polynomial integro-differential operators.*

In 1968, Dixmier posed six problems for the algebra of polynomial differential operators, i.e. the Weyl algebra. In 1975, Joseph solved the third and sixth problems. In 2005, I solved the fifth problem and gave a positive solution to the fourth problem but only in the case of homogeneous differential operators. The remaining three problems are still open. The first problem/conjecture of Dixmier (which is equivalent to the Jacobian Conjecture as was shown in 2005-07 by Tsuchimito, Belov and Kontsevich) claims that the Weyl algebra 'behaves' like a finite field. In more detail, the Dixmier Conjecture/Problem: is true that an algebra endomorphism of the Weyl algebra an automorphism? In 2010, I proved that this question has an affirmative answer for the algebra of polynomial integro-differential operators. In my talk, I will explain the main ideas, the structure of the proof and recent progress on the Dixmier Conjecture. (Received September 04, 2012)