Phyllis J Cassidy (pcassidy@ccny.cuny.edu), Department of Mathematics, The City College of New York, New York, NY 10038, and Michael F Singer* (singer@math.ncsu.edu), Department of Mathematics, Box 8205, North Carolina State University, Raleigh, NC 27695-8205. Differential Groups and Factorization of Partial Differential Operators.

It is well known that an ordinary differential operator factors as a product of irreducible operators and that in any such factorization the number of such factors is unique. This uniqueness no longer holds for partial differential operators. We show that a Jordan-Hoelder type theorem for differential groups gives a kind of factorization into irreducibles where in any such factorization the number of “factors” are unique and, after a possible permutation are equivalent in a suitable sense. (Received September 15, 2009)