

1106-VK-1170 **Morteza Shafii-Mousavi*** (mshafii@iusb.edu), Indiana University South Bend, PO Box 7111, South Bend, IN 46634. *Functional Dimension of Solution Space of Differential Operators of Constant Strength.*

Let $P(D)$ be a differential operator with constant coefficients and $N = \{ u : P(D)u = 0 \}$ to be the solution space of $P(D)$ furnished with the uniform convergence topology on compact subsets. It is known that: 1) $P(D)$ is hypoelliptic iff N is nuclear; 2) $P(D)$ is hypoelliptic iff the functional dimension of N is finite; 3) $P(D)$ is hypoelliptic iff it is d -hypoelliptic where $d = (d_1, \dots, d_n)$ is the Gevrey regularity of the solutions. Furthermore the author proved that $P(D)$ is d -hypoelliptic iff the functional dimension $dfN = d_1 + \dots + d_n + 1 - \min d_j$. I will discuss the generalization of these properties to operators $P(x, D)$ of constant strength. The functional dimension is the entropy of the solution space. (Received September 11, 2014)