1104-35-305 **Gregorio Chinni*** (chinni@ime.usp.br), IME USP, Rua do Matão 1010, Butantã, São Paulo, SP , Brazil. *Perturbation of Globally Gevrey Hypoelliptic Operators.*

Let $P(x, D)$ be a sum of squares analytic operator defined on the N-dimensional torus $\mathbb{T}^N$ satisfying the Hörmander condition. It follows from a celebrated result of Hörmander [Acta Math. **119**, 1967, 147–171] that $P(x, D)$ is locally subelliptic and hypoelliptic. By an easy global argument it then follows that there is an $\epsilon > 0$ such that every solution to $P(x, D) = f \in H^s(\mathbb{T}^N$ belongs to $H^{s+\epsilon}(\mathbb{T}^N)$. The question we are dealing with is the following pertubation property: assume that $P(x, D)$ as above is also globally Gevrey hypoelliptic of order $s \geq 1$. Is it true that $P(x, D) + \Psi(x, D)$ is also globally Gevrey hypoelliptic of order $s \geq 1$, where $\Psi(x, D)$ is an analytic pseudodifferential operator on $\mathbb{T}^N$ of order $< \epsilon$? In order words, can we assert that the subellipticity of $P(x, D)$ is related with the order of perturbation that preserves the global Gevrey hypoelliptic of order $s \geq 1$? We have the precise answer in the following cases: 1) P belongs to the class discussed in [Cordaro, P. and Himonas, A., Math.Res.Letters **1**, 1994, 501–510.] 2) $P = P(D)$ is not necessarily in Hörmander class but has constant coeficients and is hypoelliptic as an operator in $\mathbb{R}^N$. (Received September 03, 2014)