1068-42-207 **A. Eduardo Gatto** and **Wilfredo O Urbina*** (`wurbinaromero@roosevelt.edu`), 430 S Michigan Ave, Chicago, IL 60626. *Boundedness of Riesz and Bessel fractional derivatives of order bigger than one, on Gaussian Lipschitz spaces.*

Let $\beta > 0$, D^{γ}_{β} the Riesz Fractional Derivative of order β is defined by

$$D^{\gamma}_{\beta} f = \frac{1}{c^k_{\beta}} \int_0^{\infty} t^{-\beta-1} (P_t - I)^k \, f dt,$$

and $\mathcal{D}^{\gamma}_{\beta}$, the Bessel Fractional Derivative of order β is defined by

$$\mathcal{D}^{\gamma}_{\beta} f = \frac{1}{c^k_{\beta}} \int_0^{\infty} t^{-\beta-1} (e^{-t} P_t - I)^k \, f dt,$$

where $c^k_{\beta} = \displaystyle\int_0^{\infty} u^{-\beta-1}(e^{-u} - 1)^k du < \infty$, since $\beta > 0$ and k is the smallest integer greater than β.
For $\alpha \geq 0$, let n be the smallest integer greater than α, the *Gaussian Lipschitz* space $Lip_{\alpha}(\gamma)$ is the set of functions $f \in L^{\infty}(\gamma)$ such that

$$\| \frac{\partial^n P_t f}{\partial t^n} \|_{\infty} \leq A_{\alpha}(f) \, t^{-n+\alpha}. \tag{1}$$

In this talk we will prove the following results: Let $1 < \beta < \alpha$ then

i) D^{γ}_{β} is bounded from $Lip_{\alpha}(\gamma)$ into $Lip_{\alpha-\beta}(\gamma)$

ii) $\mathcal{D}^{\gamma}_{\beta}$ is bounded from $Lip_{\alpha}(\gamma)$ into $Lip_{\alpha-\beta}(\gamma)$

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