1154-37-1425 **Michail E Filippakis*** (mfilip@unipi.gr), Department of Digital Systems, University of Piraeus, 122 Grigoriou Labraki Str, 18532, Piraeus-Gr, 18534 Piraeus, Greece, and **Marilena Poulou**. *A fractional nonlinear Schrődinger-Poisson system.*

We are concerned with the following dampted fractional nonlinear Schrődinger Poisson system,

$$\left\{ \begin{array}{c} u_t + \gamma u + i(-\triangle)^s u + iu\varphi = f \\ \pm\,(-\triangle)^t \varphi = |u|^2. \end{array} \right\} \tag{1}$$

where $\gamma > 0$, $(-\triangle)^\alpha$ is the fractional Laplacian operator for $\alpha = s, t \in (0, 1)$,

The fractional Schrődinger equation provides us with a general point of view on the relationship between statistical properties of quantum-mechanical path and structure of the fundamental equations of quantum mechanics.First we analyse how the different orders of the Laplacian operator affect the existence and uniqueness of solutions as well as the existence of a global attractor.Next step to address is the discrete counterpart of the continuous dynamical systems. The aim is to prove that such a semi-discrete equation provides a discrete infinite dimensional dynamical system that possesses a global attractor.

[1] (Received September 16, 2019)

[1]The publication of this paper has been partly supported by the University of Piraeus Research Center