1145-37-195   **Michail E Filippakis*** (`mfilip@unipi.gr`), University of Piraeus Research Center, 122 Gr, Greece, and **Maria Eleni Poulou** (`mpoulou@math.ntua.gr`). *A fractional nonlinear Schrödinger-Poisson system.*

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

$$
\begin{cases}
u_t + \gamma u + i(-\Delta)^s u + iu\phi = f, \\
\qquad\qquad \pm(-\Delta)^t \phi = |u|^2,
\end{cases}
\tag{1}
$$

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

The fractional Schrödinger 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.