



**Habib Ouerdiane** (habib.ouerdiane@fst.rnu.tn) Department of Mathematics, Faculty of Sciences, University of Tunis El Manar, 1060 Tunis, Tunisia, *Holomorphic functions on nuclear Fréchet spaces and applications to Gaussian Analysis*.

ABSTRACT. In this talk we introduce a new class of  $\star$  algebras, denoted by  $\mathcal{F}_\theta(N')$ , of entire functionals of  $\theta$ -exponential growth defined on  $N'$  the dual space of a Fréchet nuclear space  $N$ , and  $\theta$  is a given Young function. We establish that the Laplace transform induces a topological isomorphism between the strong dual of  $\mathcal{F}_\theta(N')$  and a certain space of functions  $\mathcal{G}_{\theta^*}(N)$ , where  $\theta^*$  is the the polar function associated to  $\theta$ .

We apply this analytic characterization theorem to generalize some spaces used in the Gaussian and Poisson analysis theory. In particular we prove that any positive functional is represented by a Radon measure. Finally we study regularity of solutions of some stochastic differential equations.