

IE-MATH GRANADA- Máster Matemáticas
Departamento de Análisis Matemático
Grupo Junta de Andalucía FQ-199



Anuncio de conferencia:

**Nonlinear resolvent of holomorphic
generators**

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Abstract: This talk is based on joint work with Mark Elin and Toshiyuki Sugawa. Let f be the infinitesimal generator of a one-parameter semigroup $\{F_t\}_{t>0}$ of holomorphic self-mappings of the open unit disk, i.e.,

$$f = \lim_{t \rightarrow 0} \frac{1}{t} (I - F_t).$$

In this work, we study properties of the resolvent family $R = \{(I + rf)^{-1}\}_{r>0}$ in the spirit of geometric function theory. We discovered, in particular, that R forms an inverse Loewner chain and consists of starlike functions of order $\alpha > \frac{1}{2}$. Moreover, each element of R satisfies the Noshiro-Warshawskii condition

$$\operatorname{Re} [(I + rf)^{-1}]'(z) > 0.$$

This, in turn, implies that all elements of R are also holomorphic generators. Finally, we study the existence of repelling fixed points of this family.