

# Prediction of surface volatility with GAS models and SABR parametrization

**Yuri R. Fonseca**<sup>1,3</sup>, Henrique H. Hoeltgebaum<sup>2</sup>,  
Rodrigo S. Targino<sup>3</sup>, Yuri F. Saporito<sup>3</sup>

<sup>1</sup> Institute for Pure and Applied Mathematics - IMPA

<sup>2</sup> Pontifical Catholic University - PUC Rio

<sup>3</sup> Getulio Vargas Foundation - FGV EMap

The aim of this paper is to propose a methodology to predict an implied volatility surface without arbitrage opportunities. First, we build a multi-dimensional time-series of calibrated surface volatility through SABR parametrization. Second, we predict the surface parameters using GAS Models. We tested our model in FX markets and compared the results with others time-series modelling techniques.