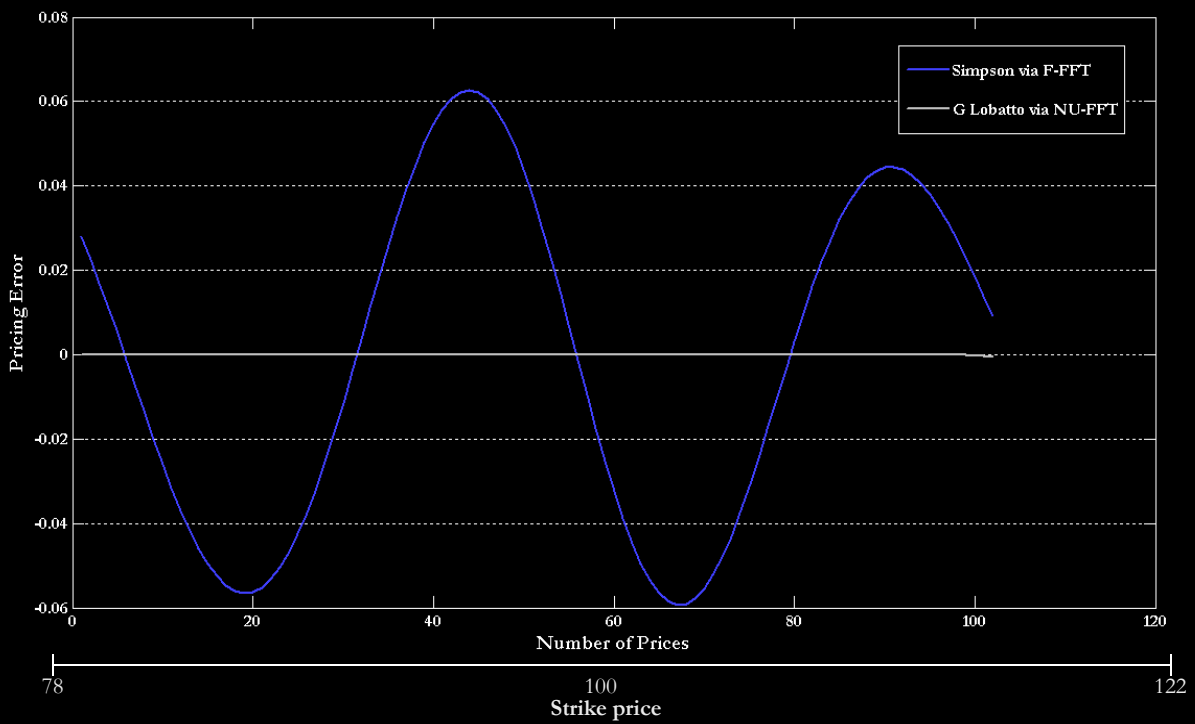
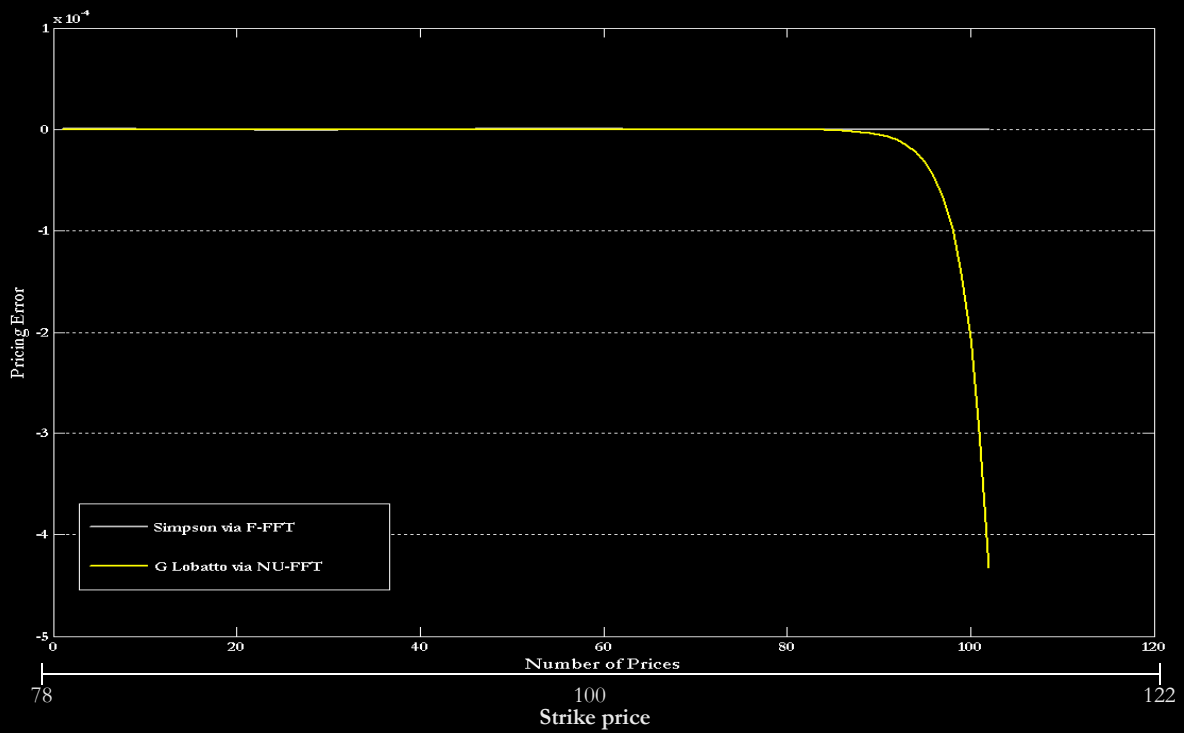


BLACK SCHOLES MODEL

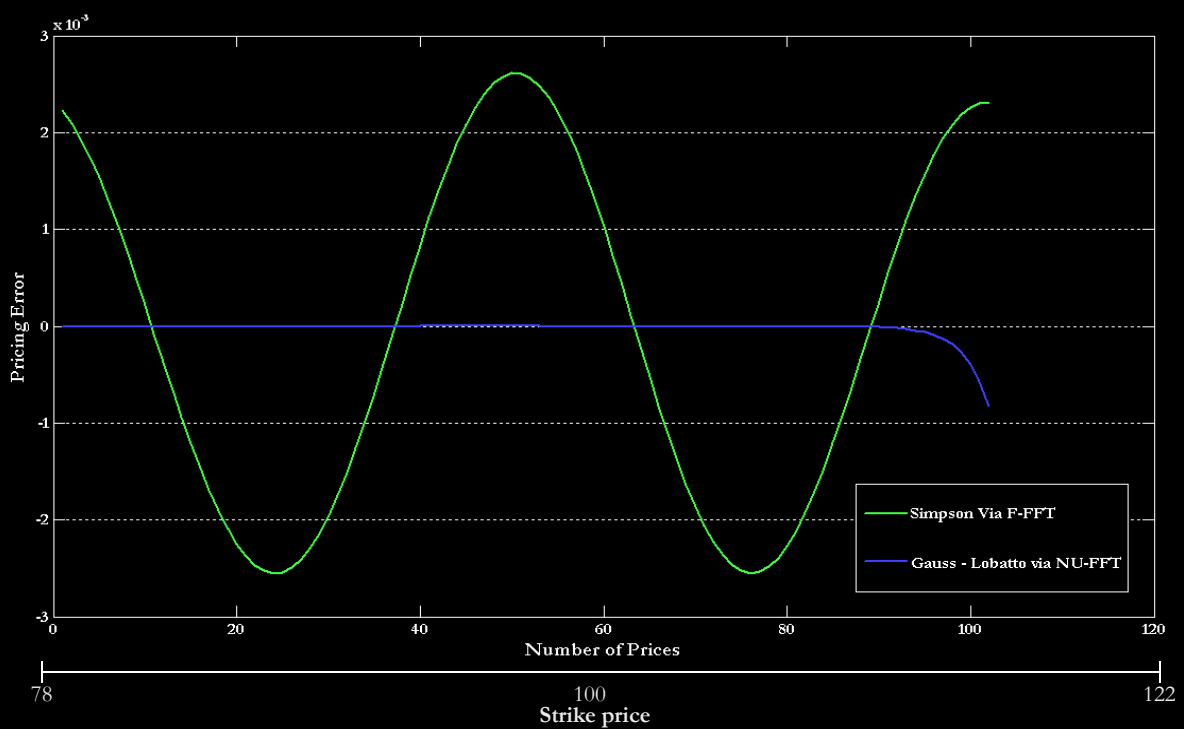


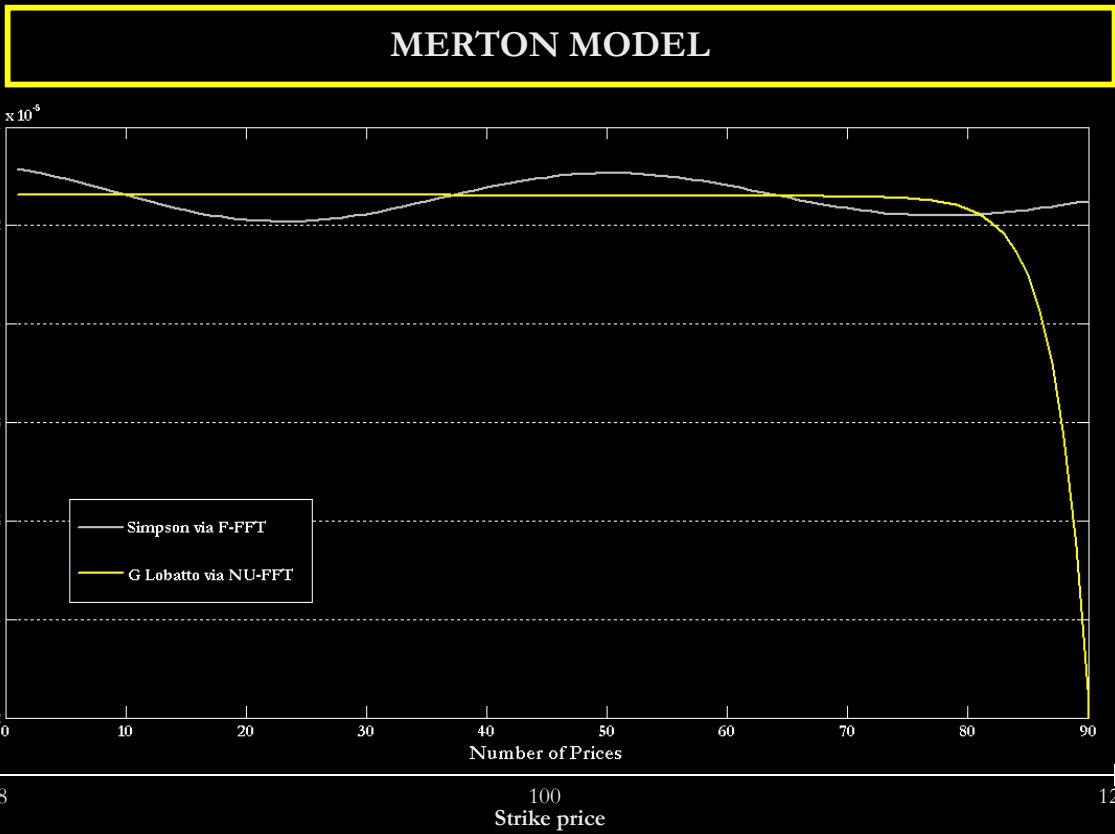
STABILITY

BLACK SCHOLES MODEL

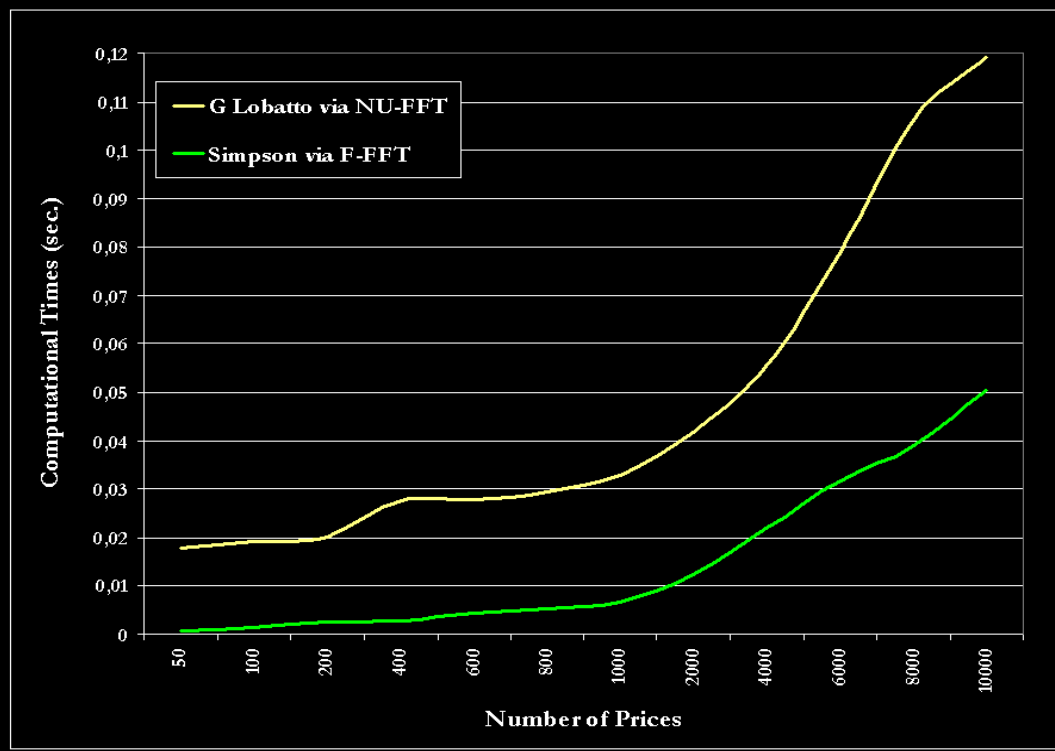


HESTON MODEL



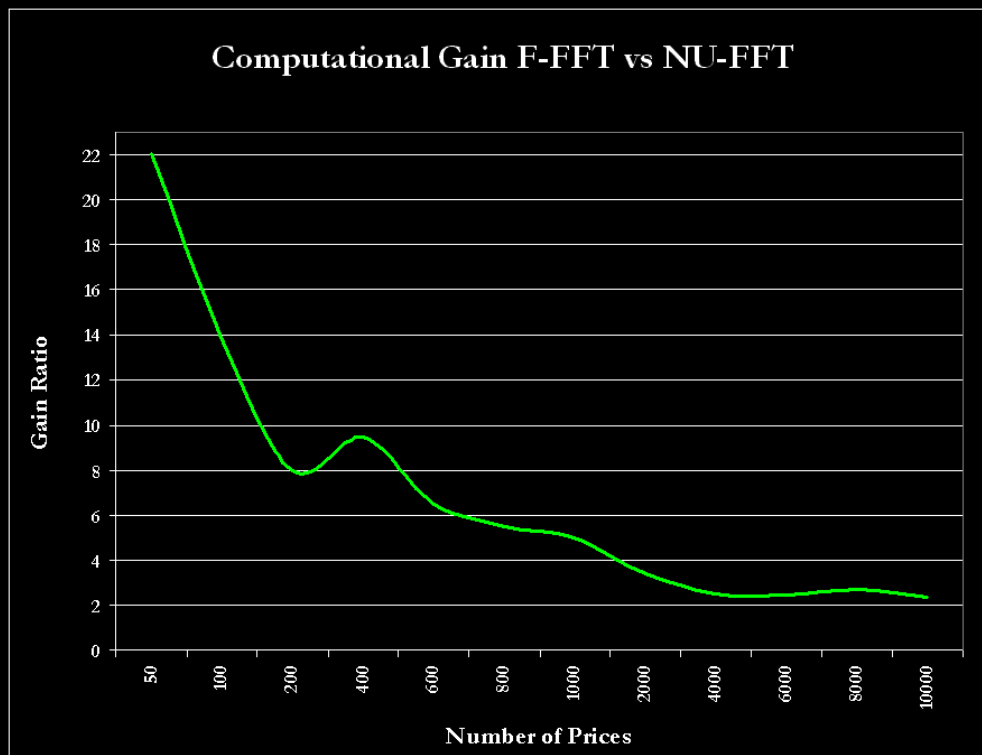


SPEED



Centrino 1600Mhz – 1gb RAM
Mean Value over 1000 runs

The Computational Framework



Centrino 1600Mhz – 1gb RAM
Mean Value over 1000 runs

At very low time scales, the differences **are negligible**

Syllabus of the presentation

- **Review of Derivative Pricing via DFT**
 - FT Pricing Formulae
 - DFT Convergence to FT
 - Convergence Theorems for Uniform Grids
 - Convergence Theorems for Non Uniform Gaussian Grids
- **Fast Derivative Pricing**
 - Fractional FFT
 - Non Uniform FFT
 - Gaussian Gridding: a matter of interpolation
 - Fractional vs Non Uniform FFT: Empirical Analysis
 - **Conclusions**

Use of Gaussian Grids

F-FFT	NO
NU – FFT	YES

Indifference to Nyquist-Shannon Limit

F-FFT	YES
NU – FFT	YES

Indipendent Price Grids

F-FFT	YES
NU – FFT	YES

FFT's like - Accuracy

F-FFT	YES
NU – FFT	YES

Stability of Pricing

F-FFT	NO
NU – FFT	YES

Speed of Pricing

F-FFT	YES
NU – FFT	YES

	F-FFT	NU – FFT
Gaussian Grids		
NS Limit		
Indipendent Grids		
Accuracy		
Stability		
Speed		

Numerical Methods in Semianalytical Derivatives Pricing

Efficient Solutions for Standard, Fractional and Non Uniform Discrete Transforms

