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## fd\_natalinibriani\_fps2d

Input parameters:

- SpaceStepNumber  $N1$
- SpaceStepNumber  $N2$
- SpaceStepNumber  $N3$

Output parameters:

- Price
- Delta

This model is given by,

$$\begin{aligned}dS_t &= rS_t dt + \sqrt{v_t}S_t dW_t^1, \\dv_t &= k(\theta - v_t)dt + \sigma\sqrt{v_t}dW_t^2,\end{aligned}$$

where  $W^1$  and  $W^2$  are two correlated brownian motions with  $\langle W^1, W^2 \rangle_t = \rho t$ , and  $k$ ,  $\theta$  and  $\sigma$  are constants. The EDP associated with option pricing problem is solved with a finite difference scheme. Details abouts this routine are in [there](#).