Schéma explicite pour l'équation de la chaleur

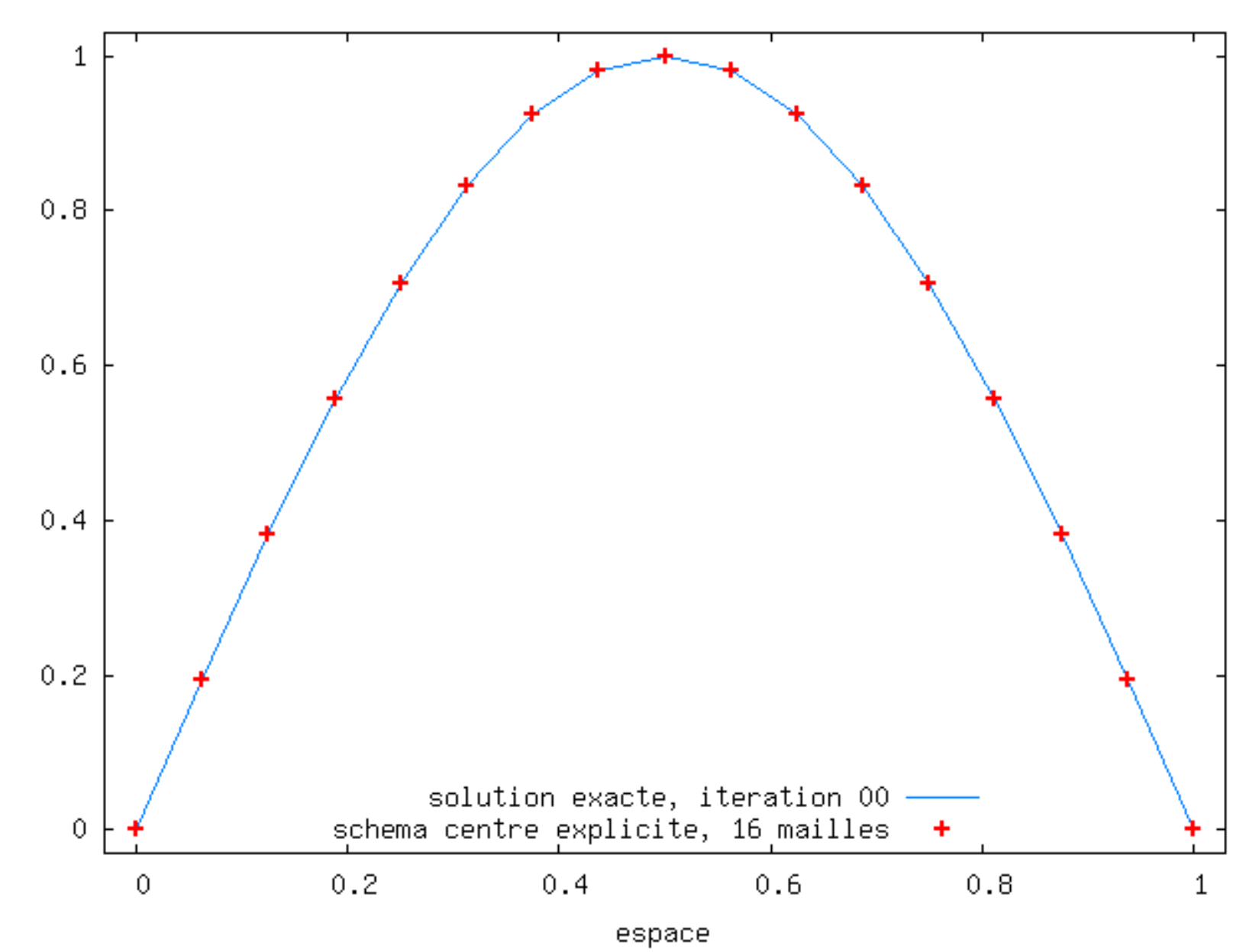
François Dubois*

Introduction à l'Analyse Numérique
des Equations aux Dérivées Partielles
Cours 4, 25 avril 2017

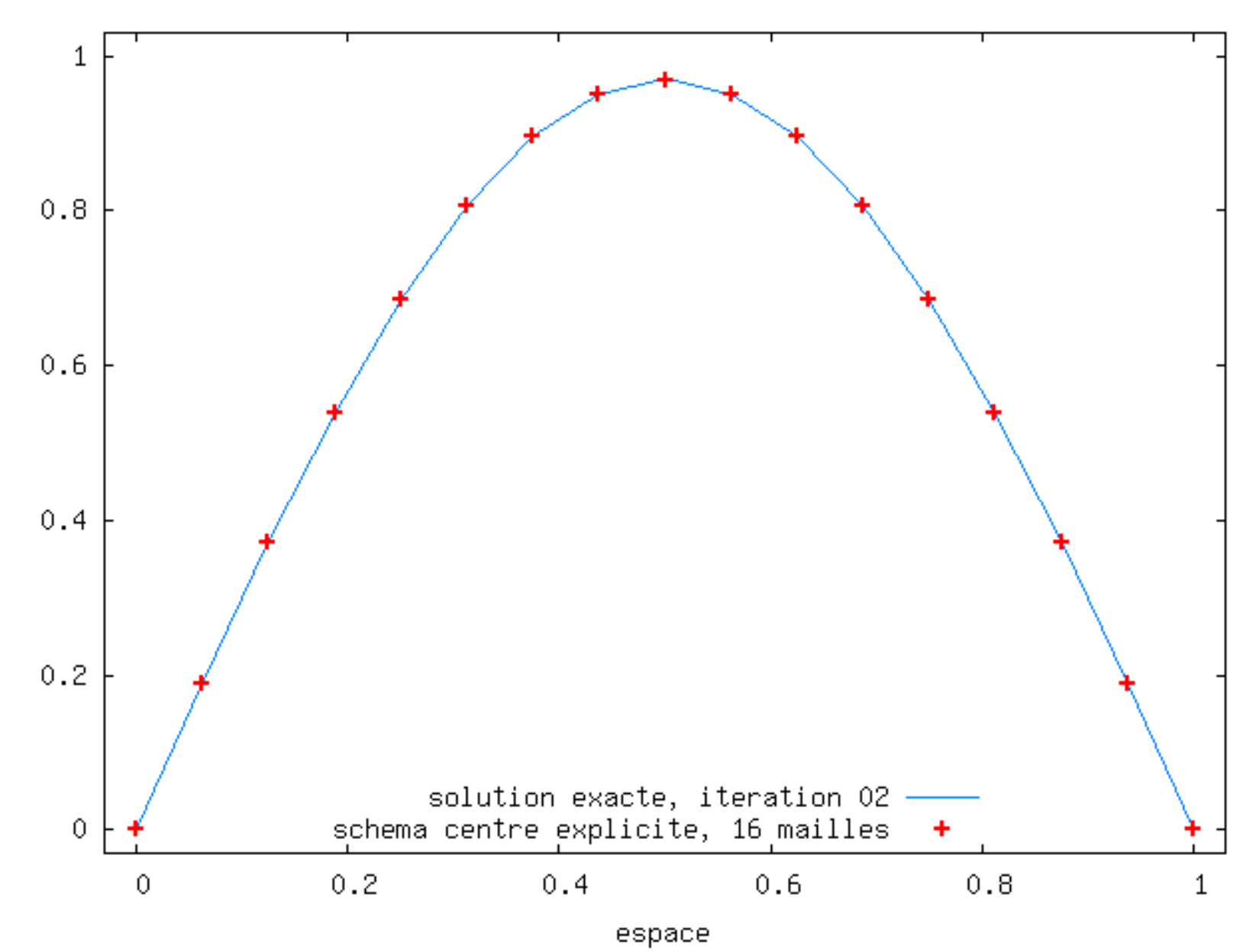
CNAM Saint-Denis, ingénieurs en aérodynamique

* Conservatoire National des Arts et Métiers, Paris

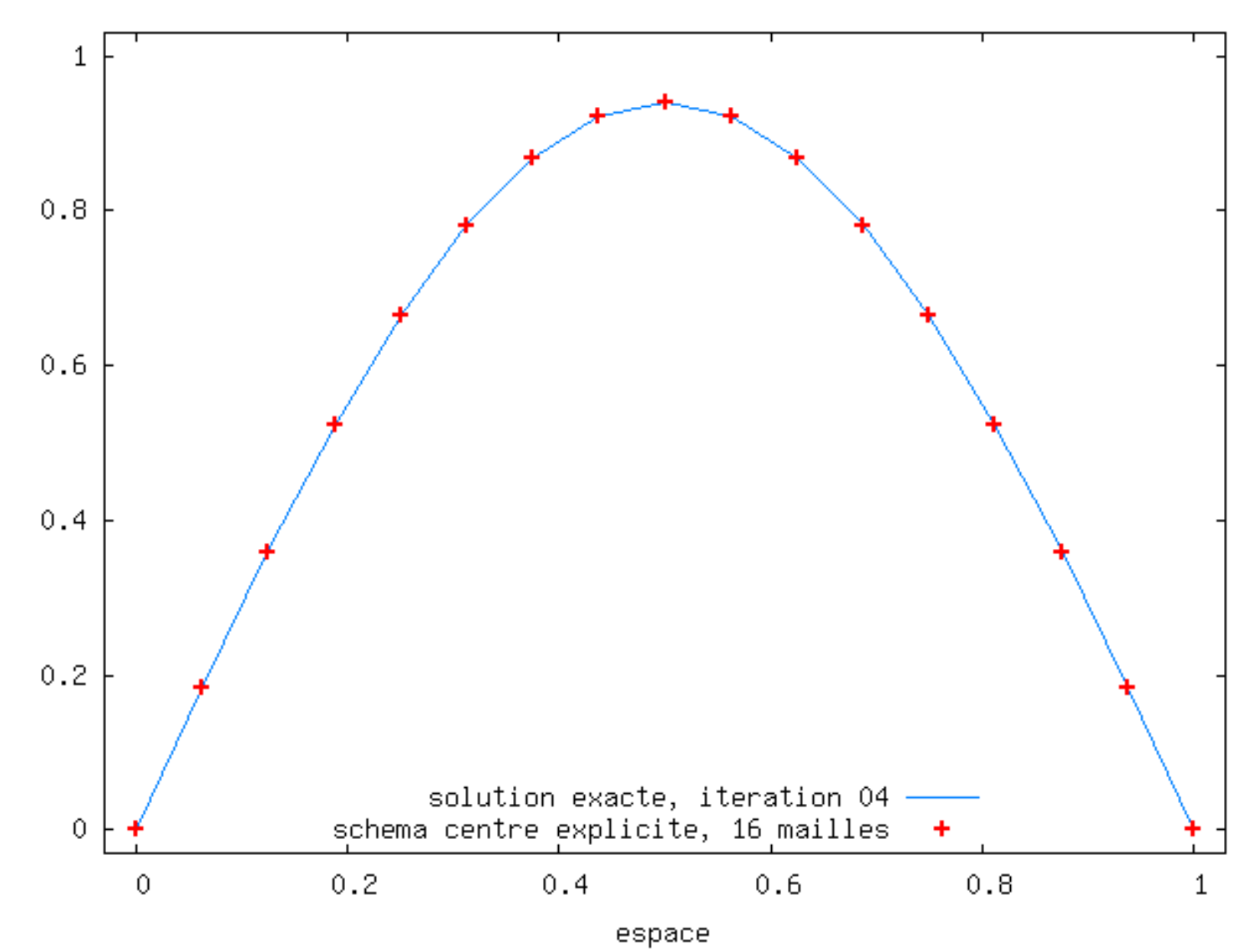
Diffusion, condition initiale, 16 mailles



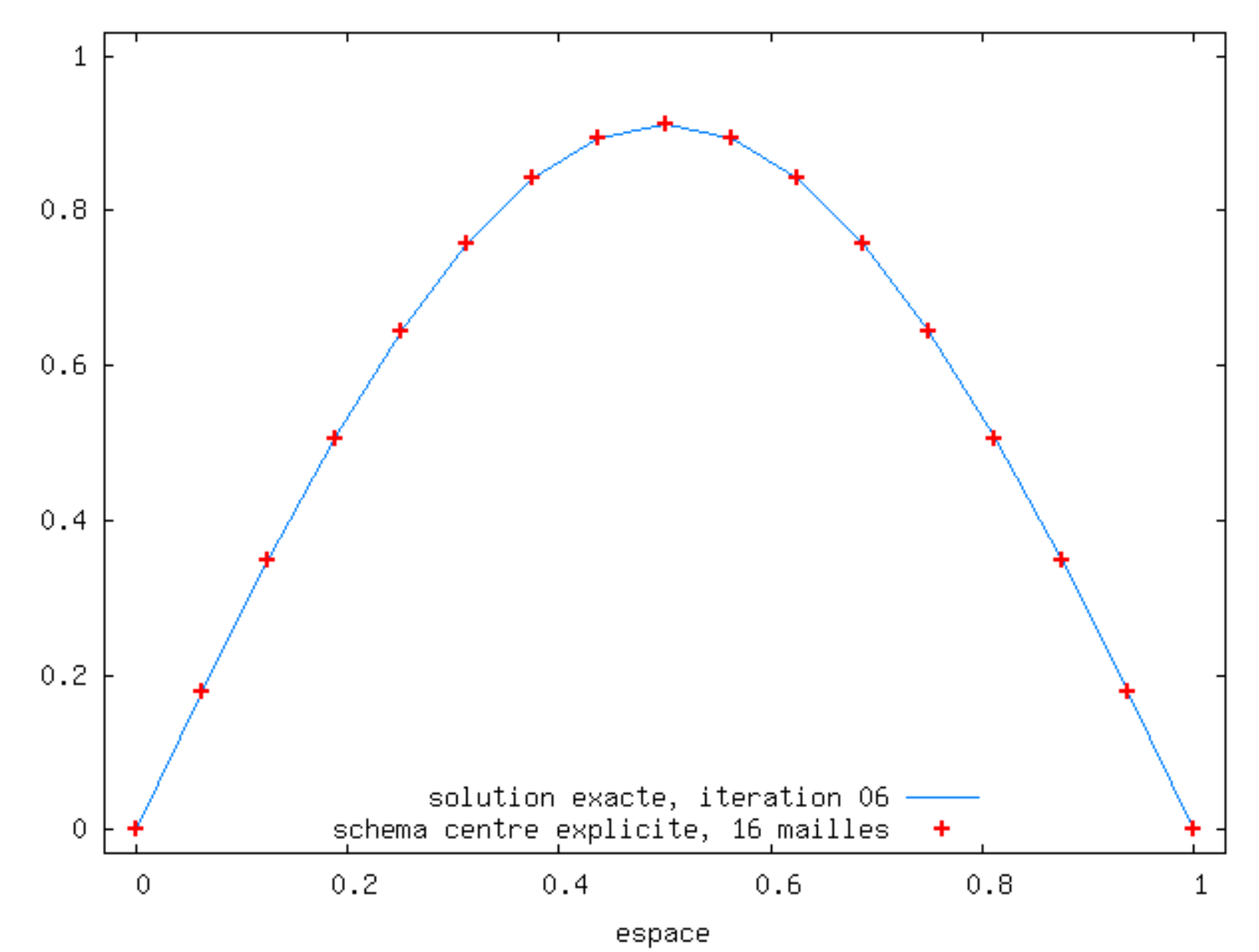
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 02



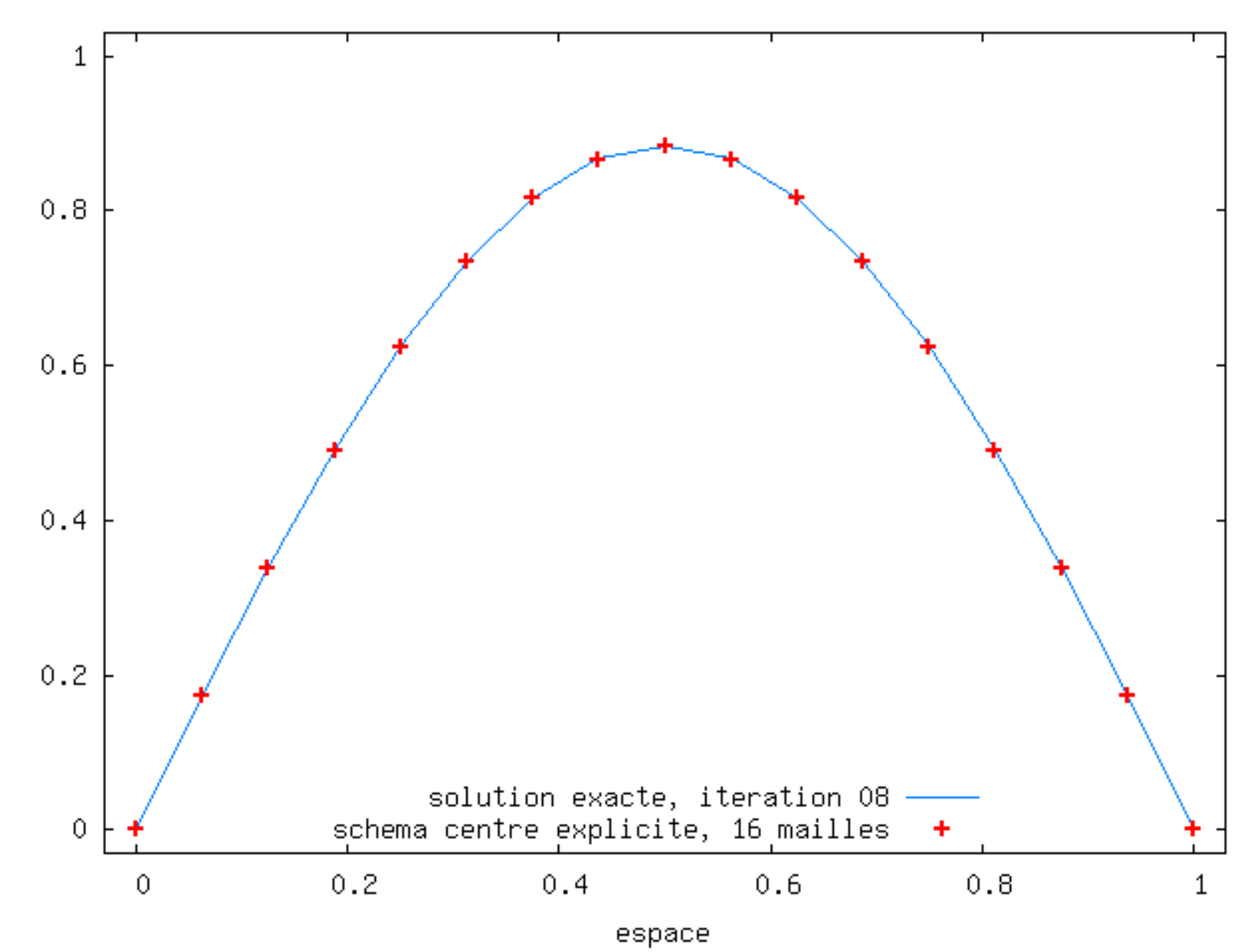
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 04



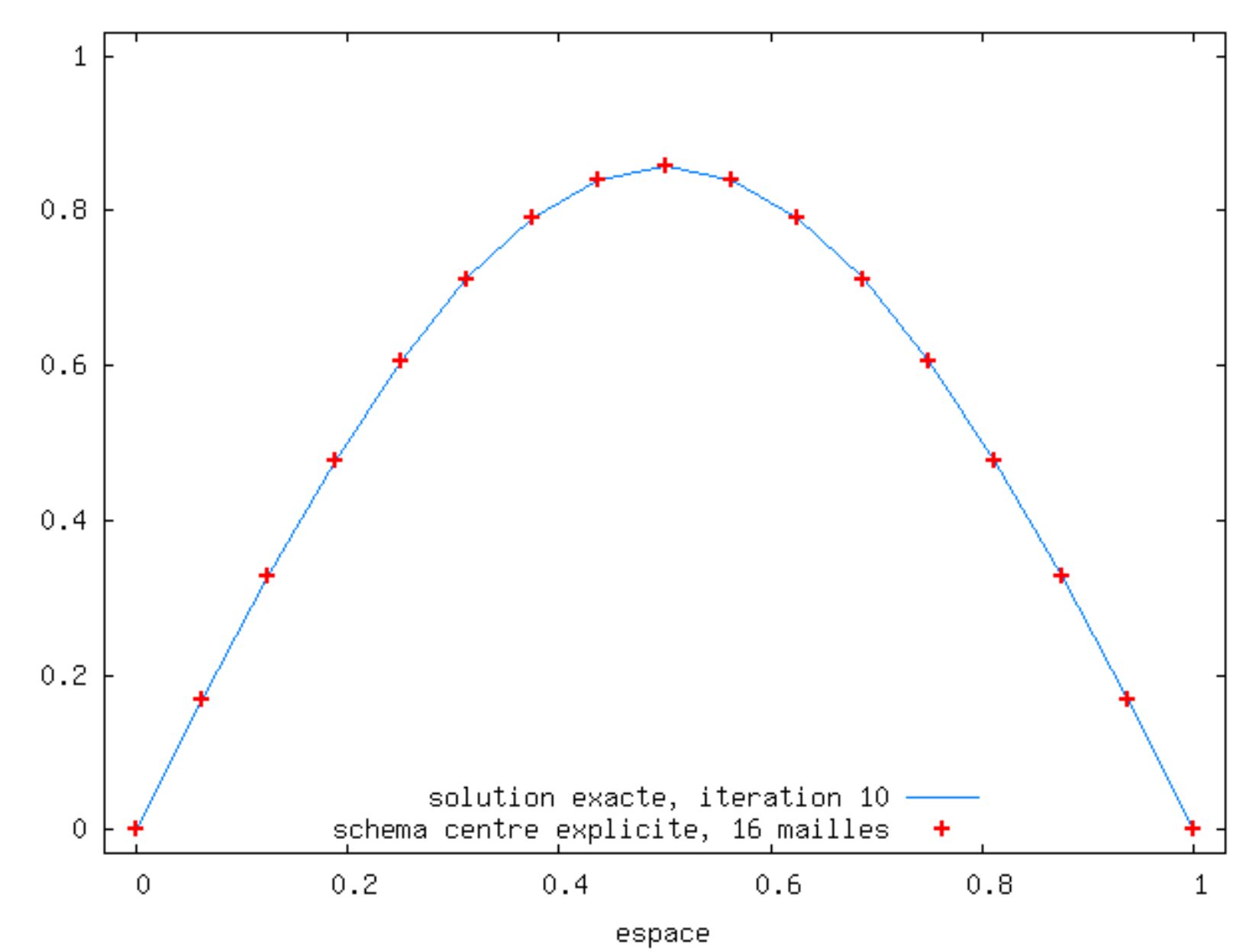
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 06



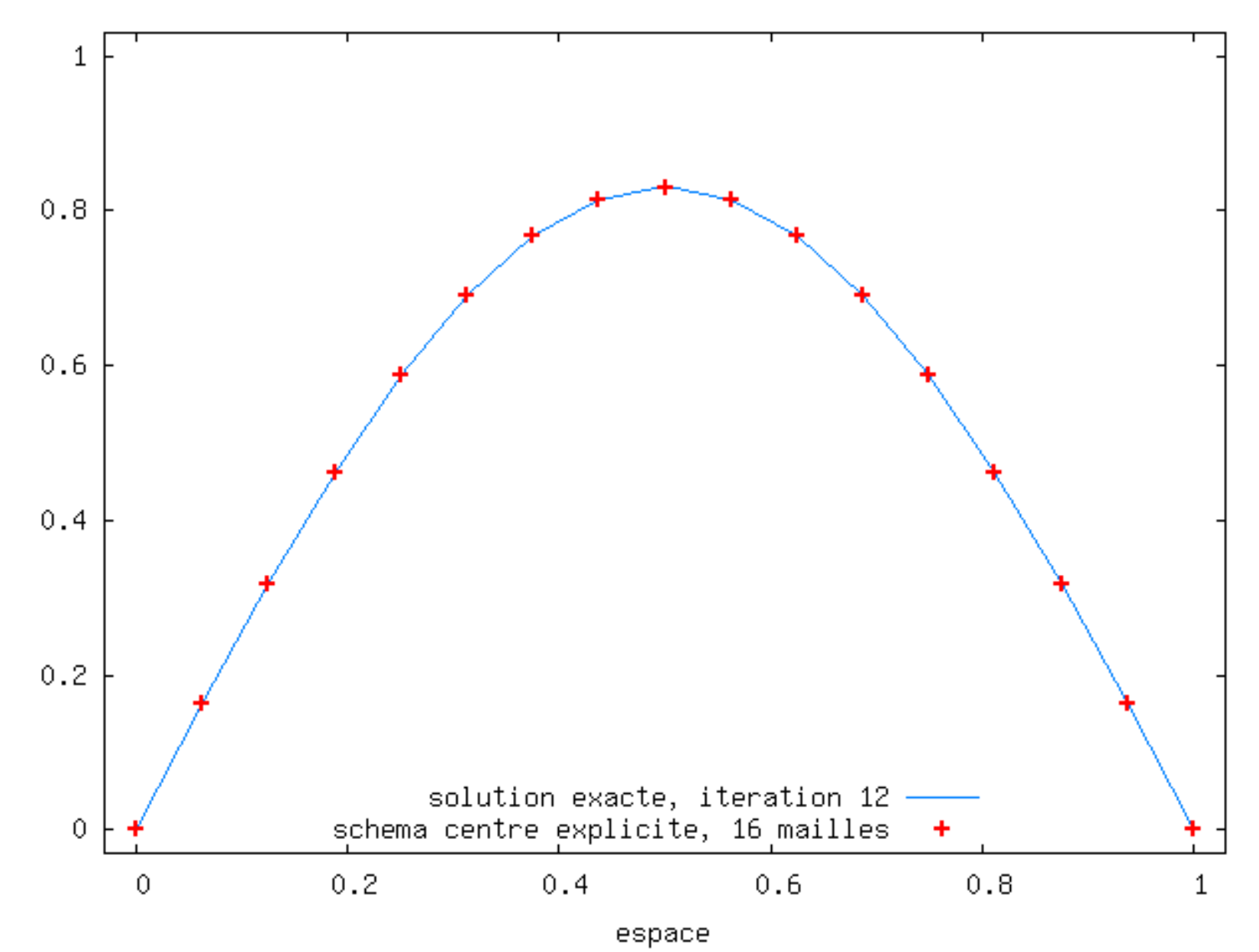
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 08



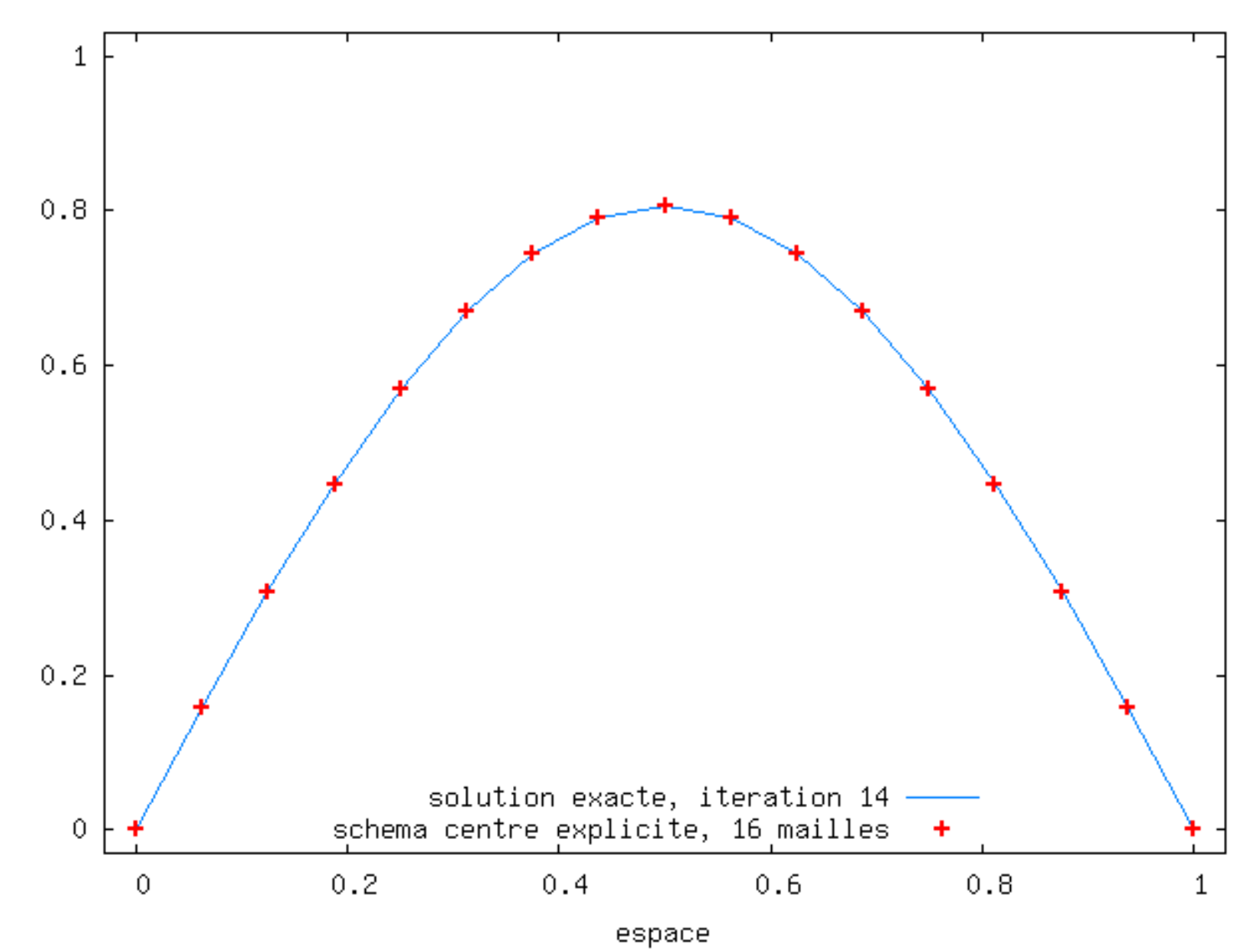
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 10



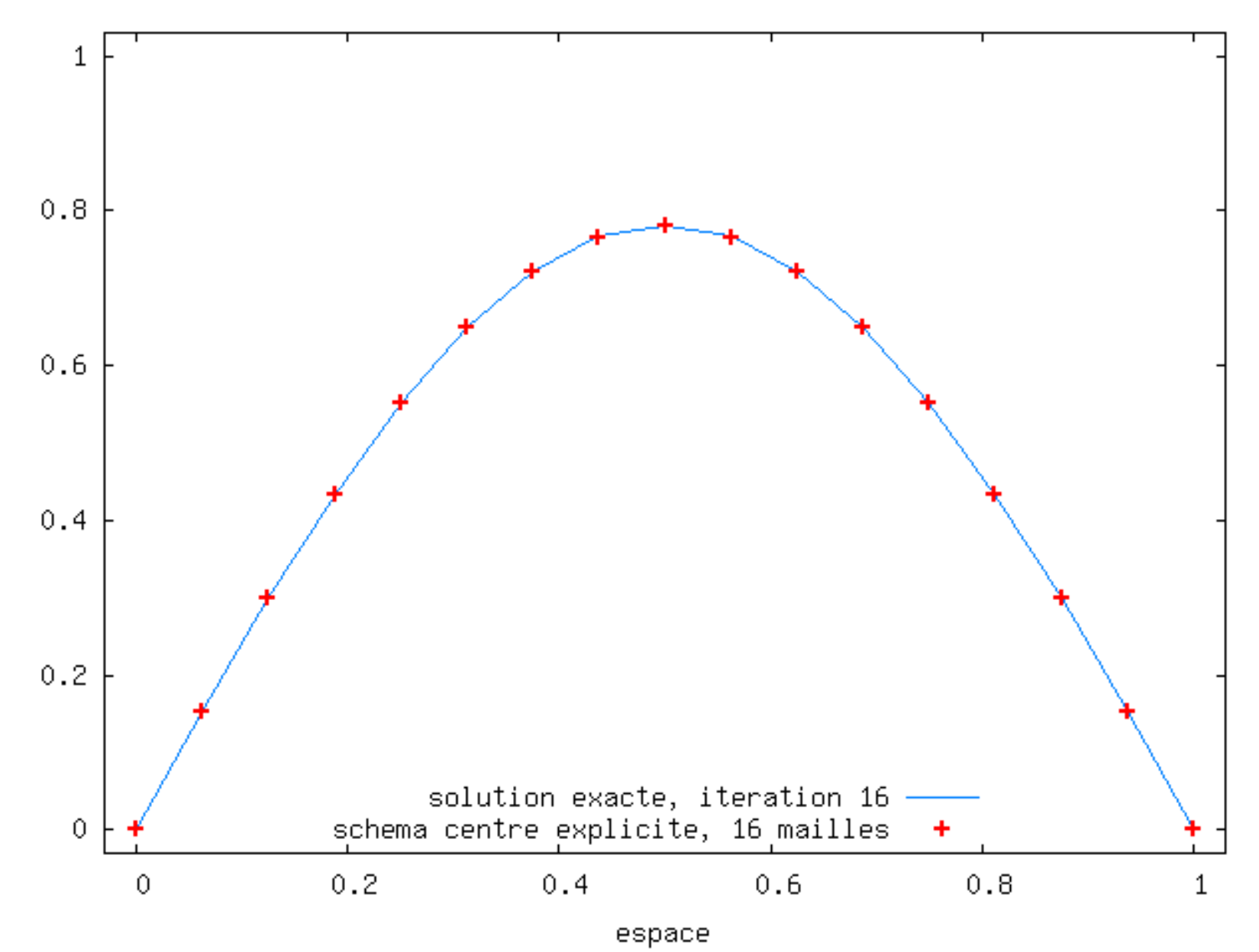
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 12



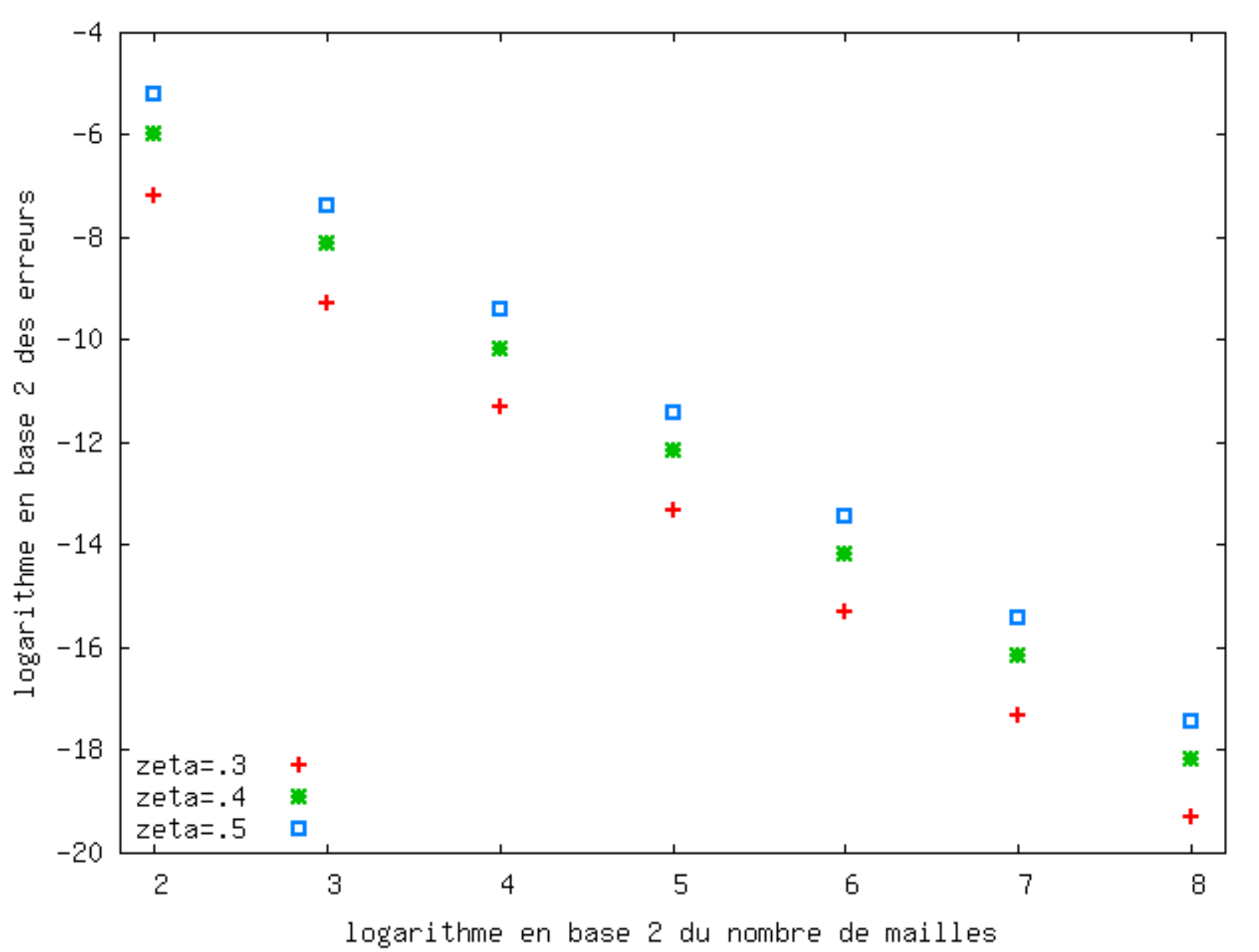
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 14



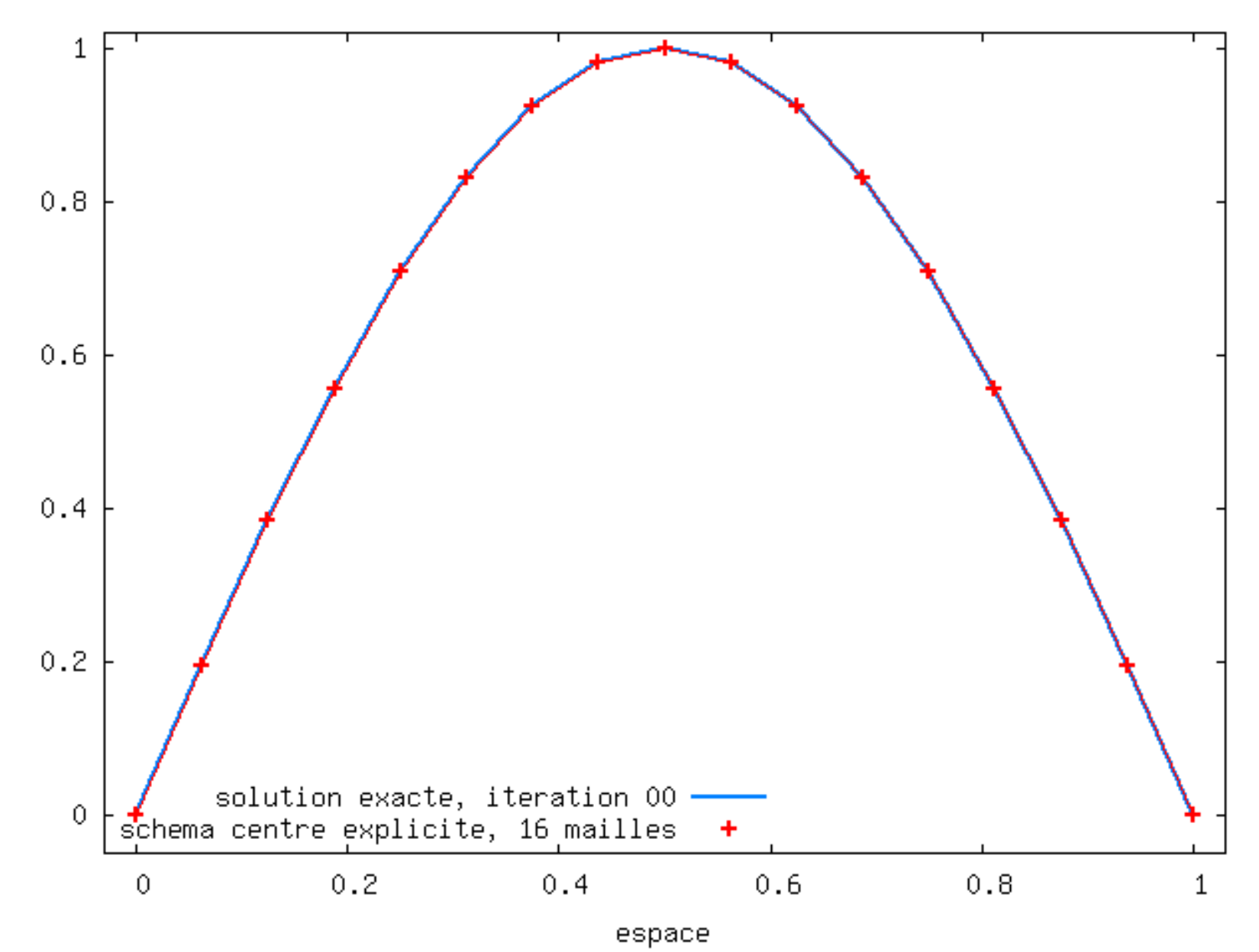
Diffusion, $\zeta = 0.4$, 16 mailles, iteration 16



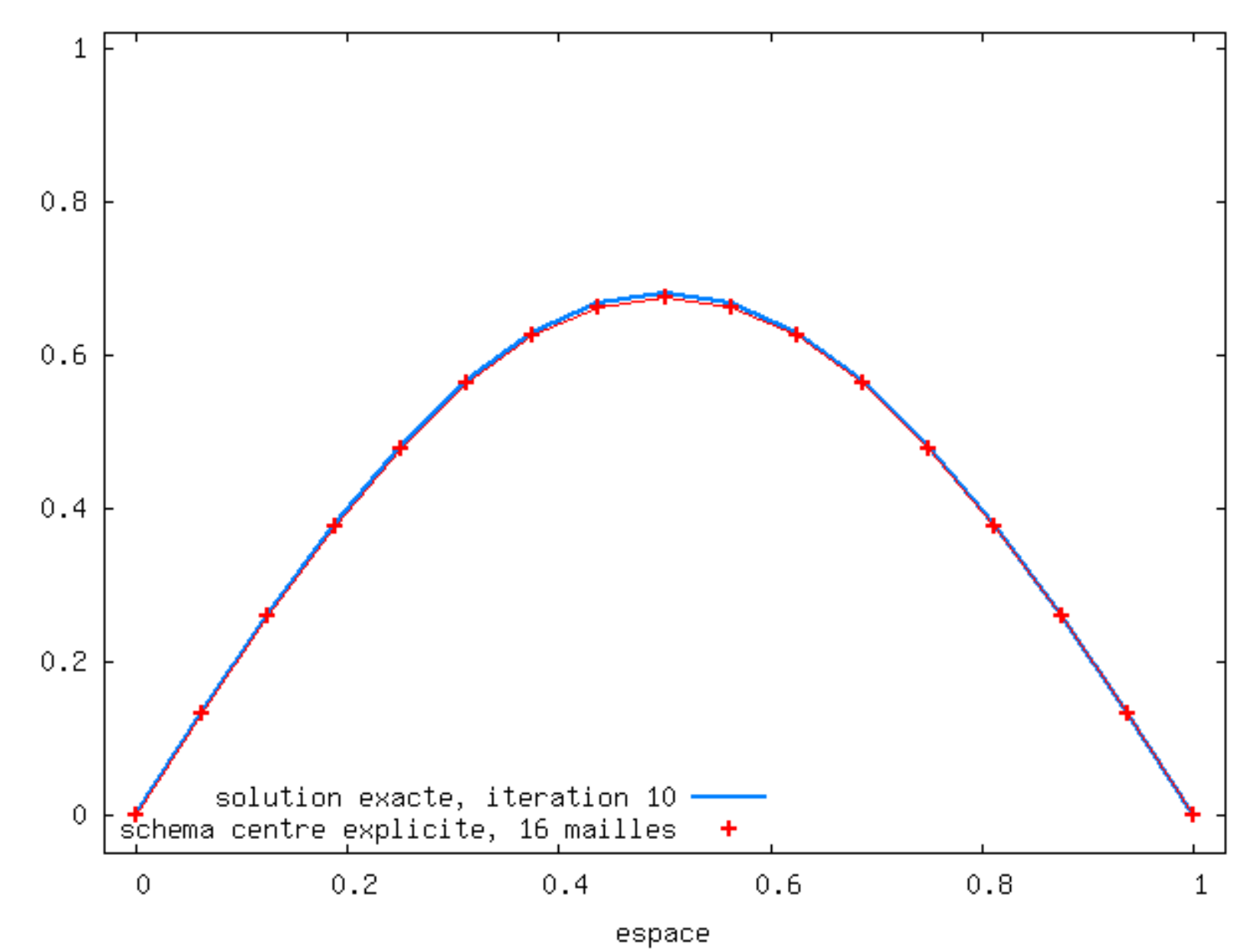
Précision du schéma



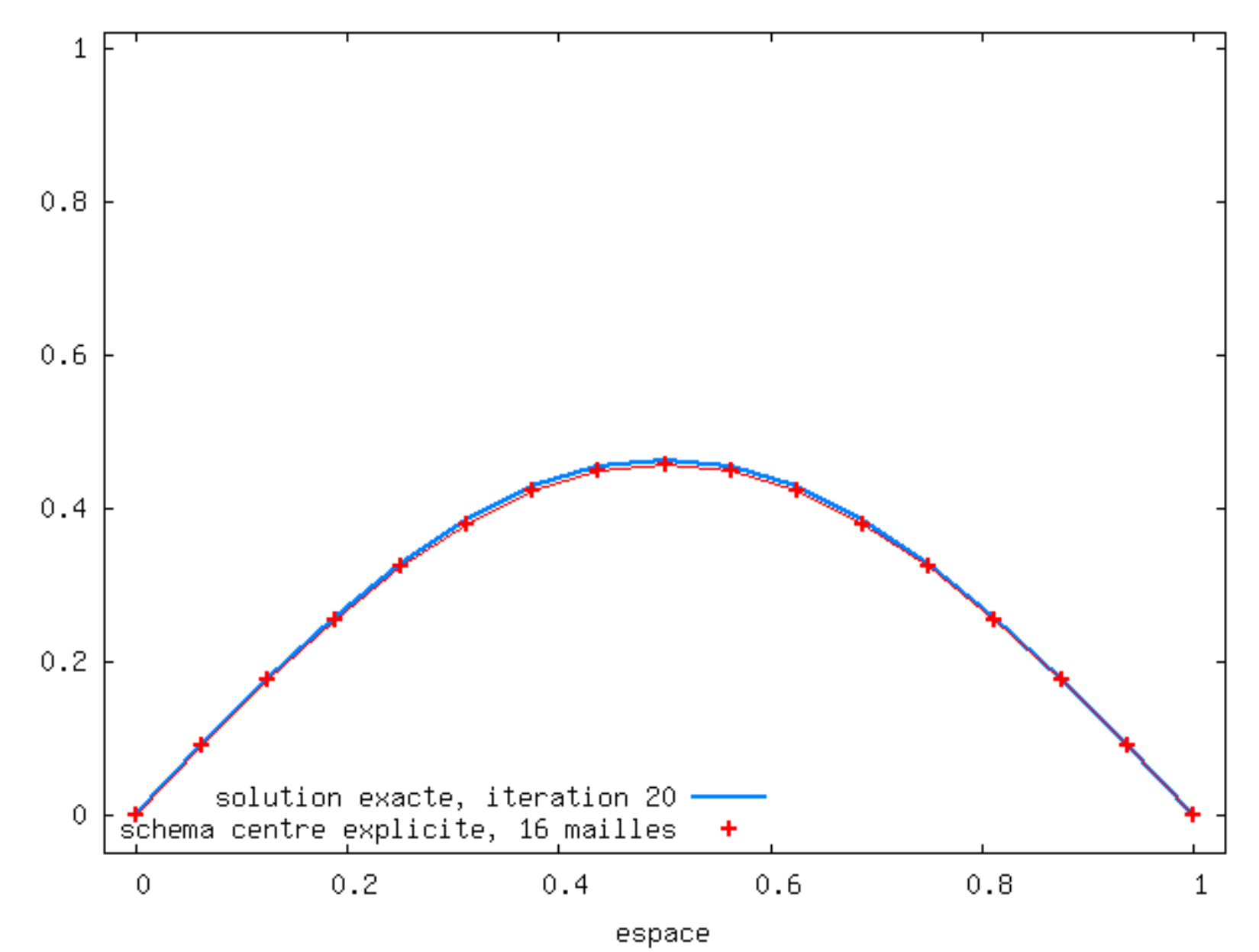
Evolution de l'approximation discrète, $\zeta = 1$



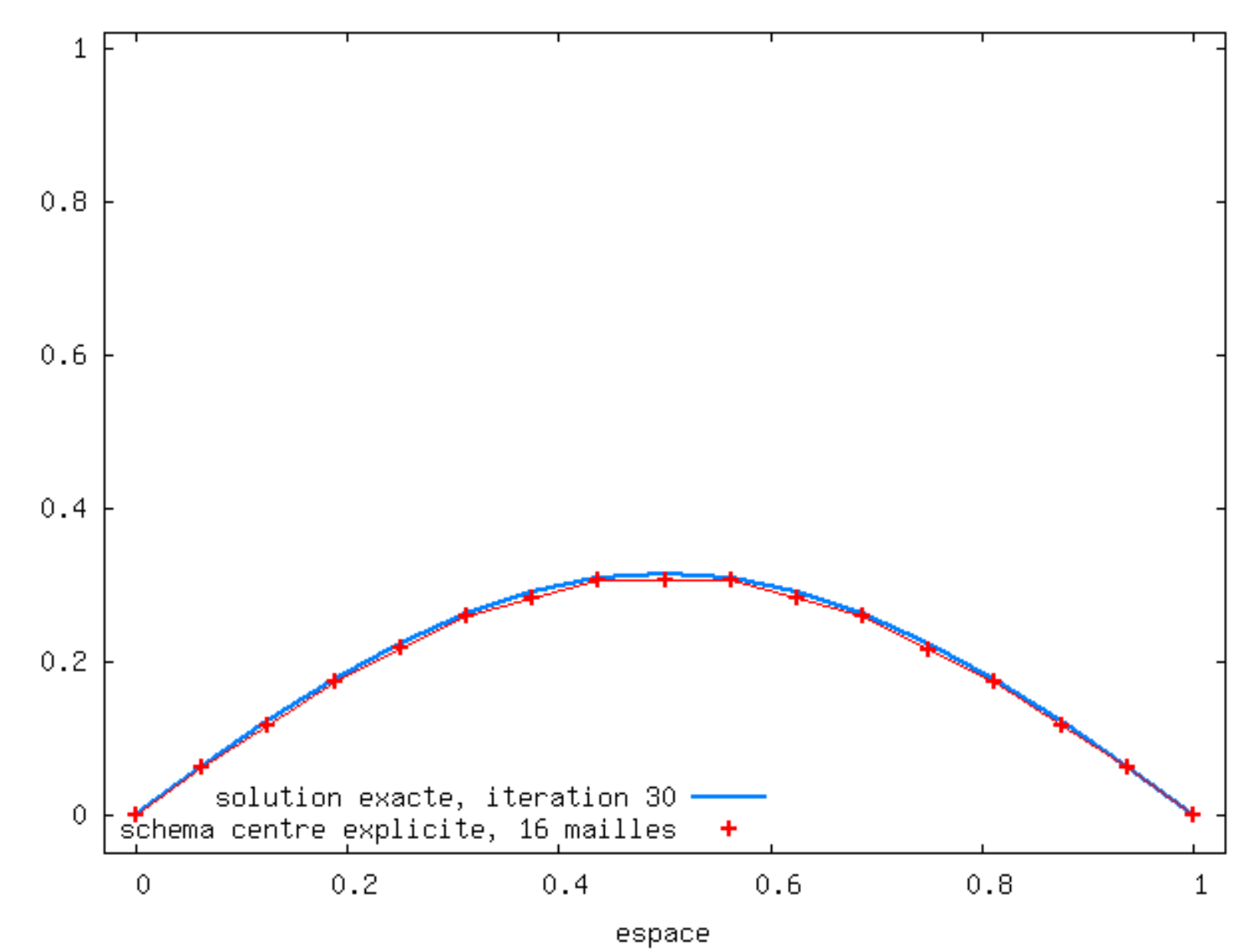
$\zeta = 1$, 16 mailles, iteration 10



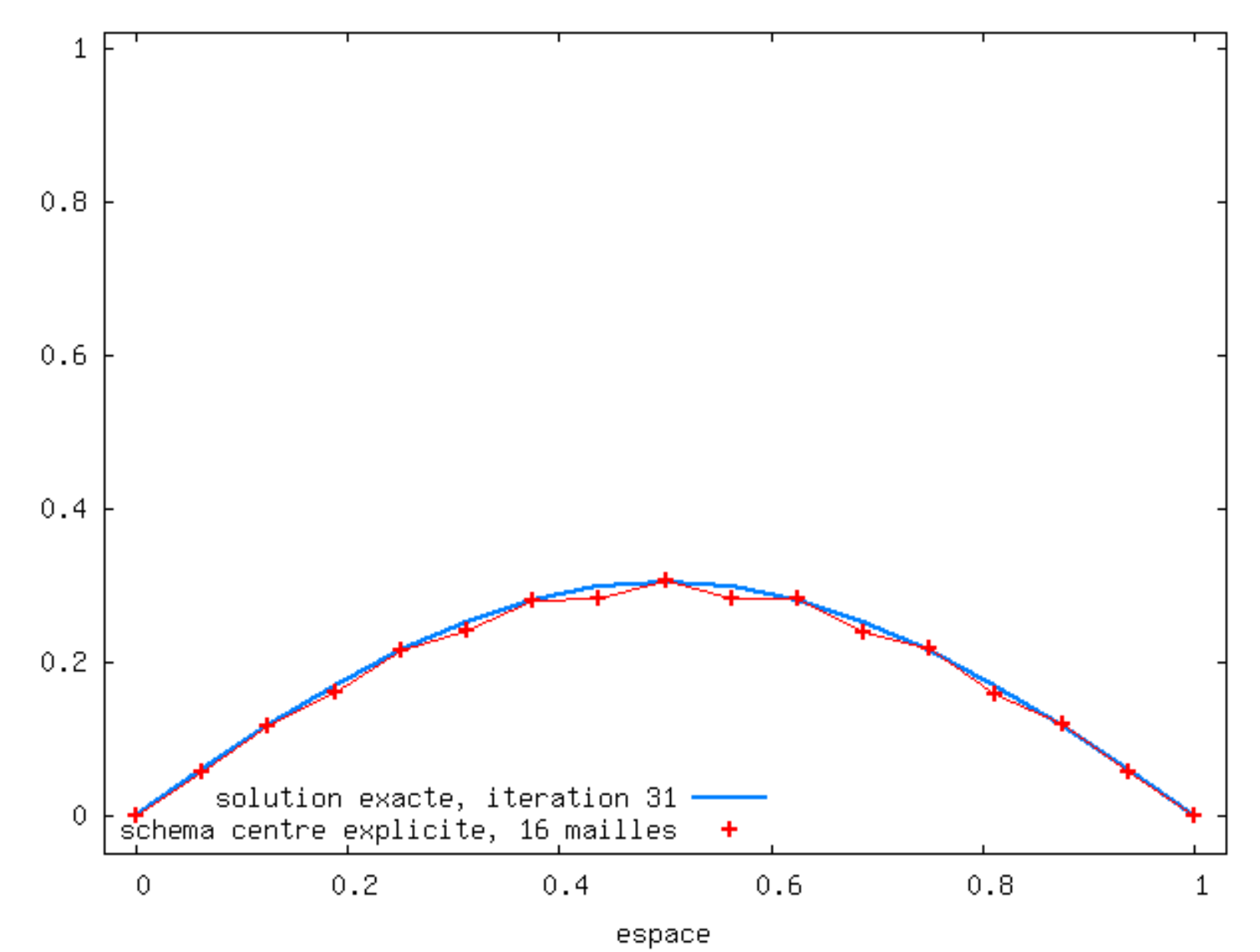
$\zeta = 1$, 16 mailles, iteration 20



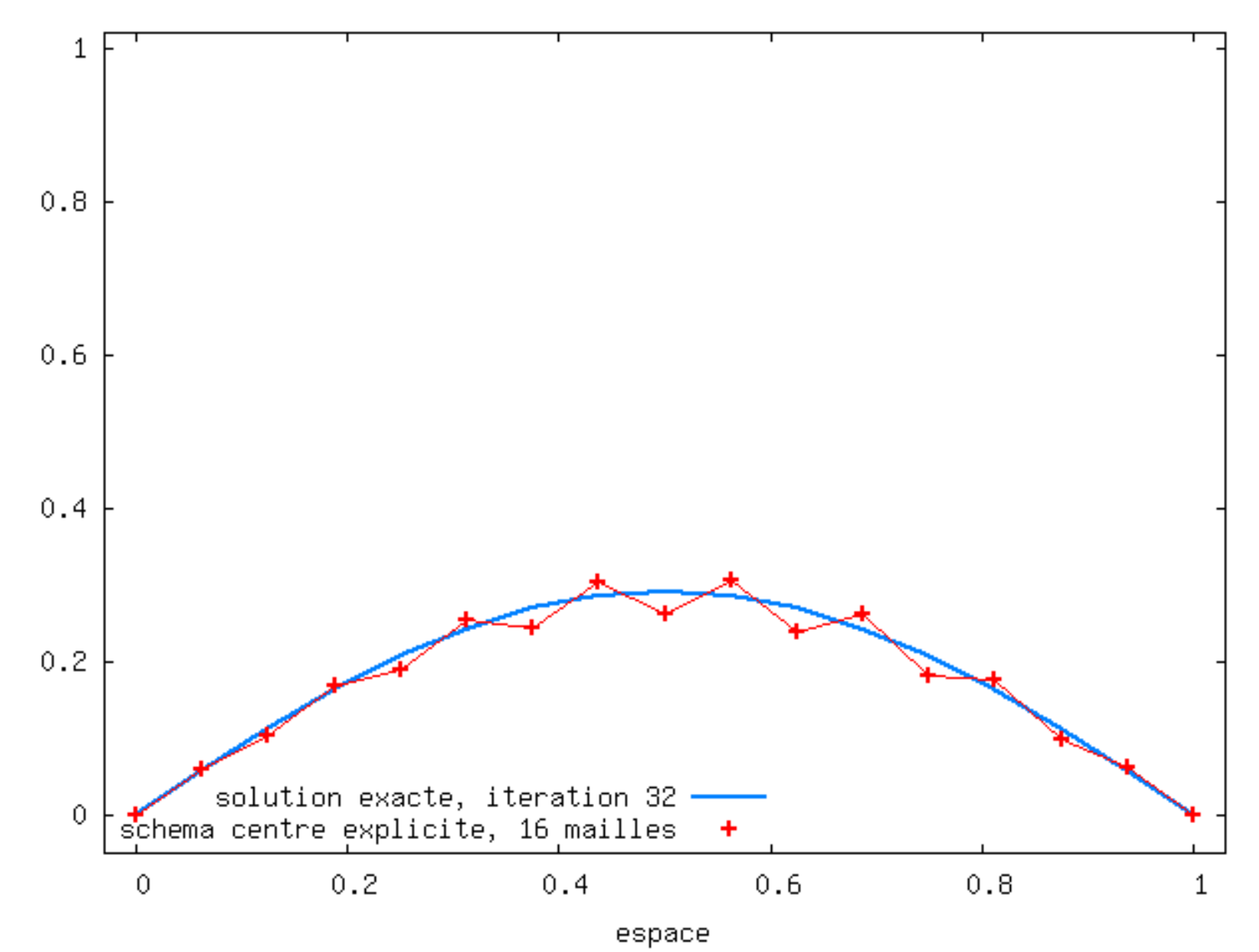
$\zeta = 1$, 16 mailles, iteration 30



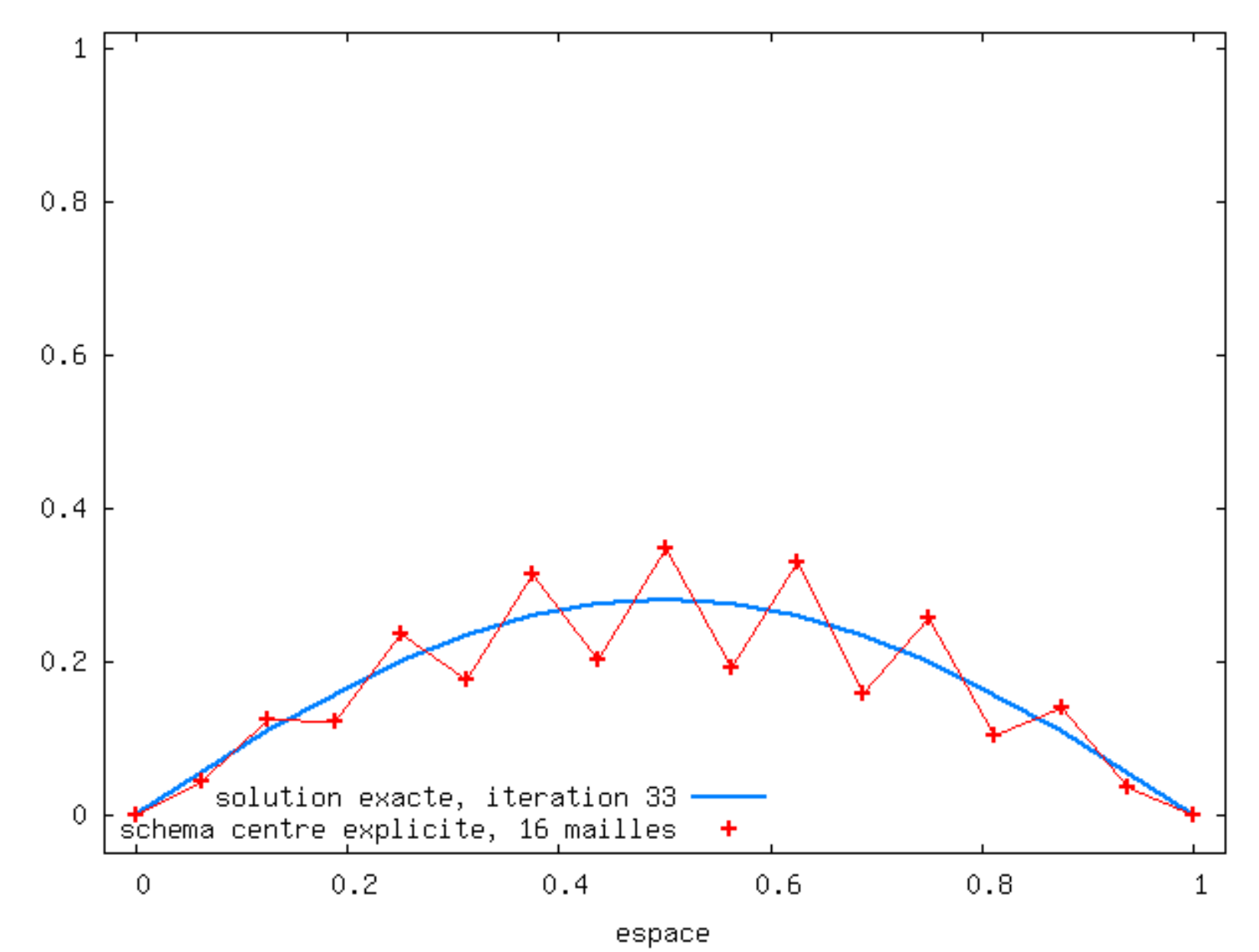
$\zeta = 1$, 16 mailles, iteration 31



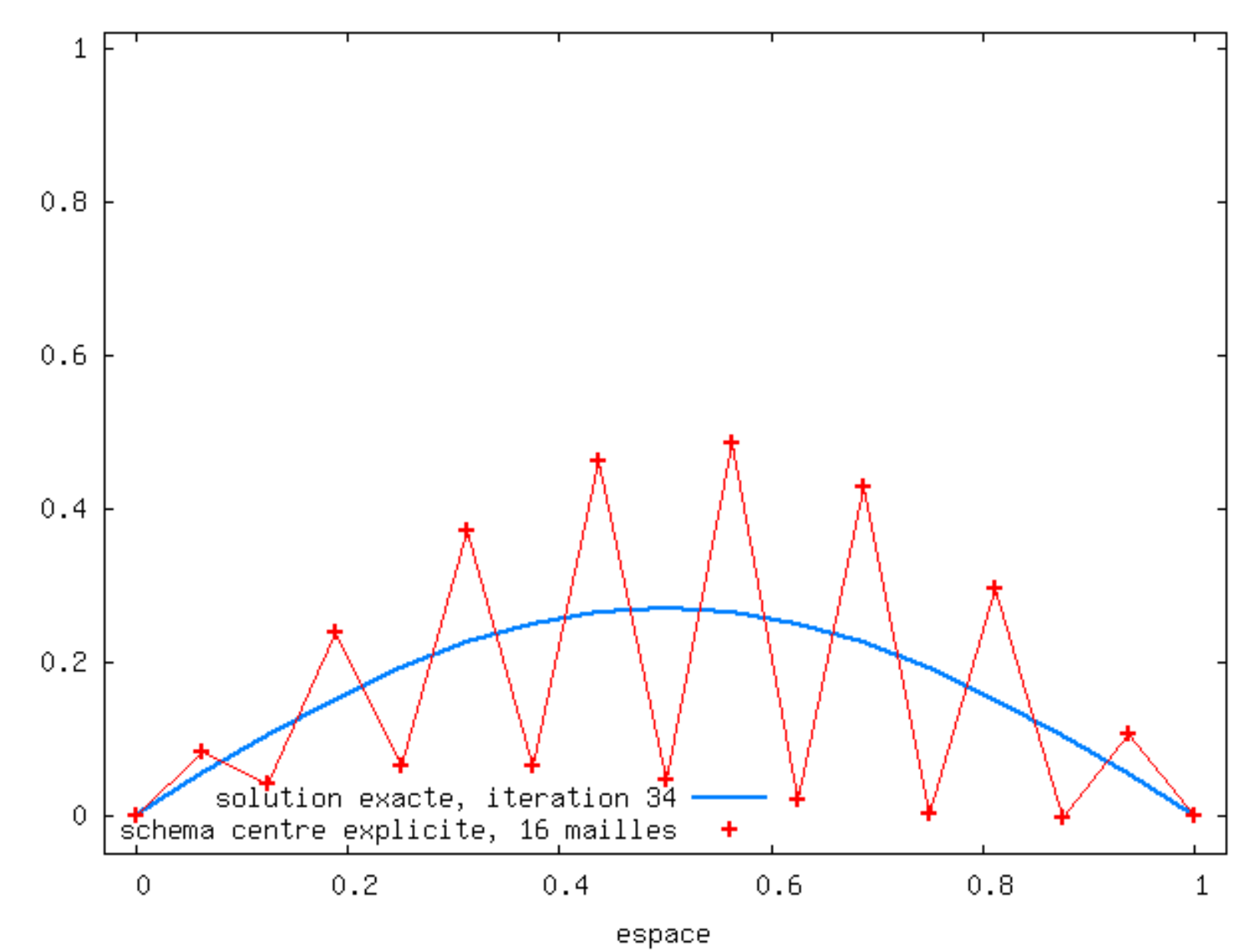
$\zeta = 1$, 16 mailles, iteration 32



$\zeta = 1$, 16 mailles, iteration 33



$\zeta = 1$, 16 mailles, iteration 34



$\zeta = 1$, 16 mailles, iteration 35