

Eigenfunctions for a 6-fold degeneracy of the square domain. With this many elements, it is possible to build a tuned eigenfunction with some degree of localization.

$$A = \sin(5x) \cdot \sin(20y)$$

$$B = \sin(20x) \cdot \sin(5y)$$

$$C = \sin(8x) \cdot \sin(19y)$$

$$D = \sin(19x) \cdot \sin(8y)$$

$$E = \sin(13x) \cdot \sin(16y)$$

$$F = \sin(16x) \cdot \sin(13y)$$

$$\blacksquare z = \frac{1}{10} \left((\cos(\pi n)) (E + F) - \left(\cos\left(\pi n + \frac{2\pi}{3}\right) \right) (C + D) \right. \\ \left. + \left(\cos\left(\pi n + \frac{4\pi}{3}\right) \right) (A + B) \right)^2$$

