

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.

$$A = \sin(1x) \cdot \sin(18y)$$

$$B = \sin(18x) \cdot \sin(1y)$$

$$C = \sin(6x) \cdot \sin(17y)$$

$$D = \sin(17x) \cdot \sin(6y)$$

$$E = \sin(10x) \cdot \sin(15y)$$

$$F = \sin(15x) \cdot \sin(10y)$$

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

$$z = \frac{1}{4} (n(C + D) + (1 - n)(E - F))^2$$

