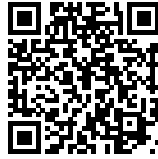


THE METHOD OF DEFLATION

http://www.phys.uconn.edu/~rozman/Courses/m3511_19s/



Last modified: March 7, 2019

$$A\mathbf{v}_i = \lambda_i\mathbf{v}_i, \quad |\mathbf{v}_i| = \sqrt{\mathbf{v}_i^t\mathbf{v}_i} = 1, \quad \mathbf{v}_i^t\mathbf{v}_j = 0, \quad i \neq j. \quad (1)$$

$$B = A - \lambda_1\mathbf{v}_1\mathbf{v}_1^t \quad (2)$$

$$B\mathbf{v}_1 = (A - \lambda_1\mathbf{v}_1\mathbf{v}_1^t)\mathbf{v}_1 = A\mathbf{v}_1 - \lambda_1\mathbf{v}_1(\mathbf{v}_1^t\mathbf{v}_1) = \lambda_1\mathbf{v}_1 - \lambda_1\mathbf{v}_1 = 0\mathbf{v}_1 \quad (3)$$

$$\boxed{B\mathbf{v}_1 = 0\mathbf{v}_1} \quad (4)$$

$$B\mathbf{v}_i = (A - \lambda_1\mathbf{v}_1\mathbf{v}_1^t)\mathbf{v}_i = A\mathbf{v}_i - \lambda_1\mathbf{v}_1(\mathbf{v}_1^t\mathbf{v}_i) = \lambda_i\mathbf{v}_i - 0\mathbf{v}_1 = \lambda_i\mathbf{v}_i, \quad i \neq 1. \quad (5)$$

$$\boxed{B\mathbf{v}_i = \lambda_i\mathbf{v}_i} \quad i \neq 1. \quad (6)$$