
算法 1.1 基于 MGS (Modified Gram-Schmidt) 的 Arnoldi 过程

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1: 给定非零向量  $r$ 
2:  $v_1 = r / \|r\|_2$ 
3: for  $j = 1, 2, \dots, m - 1$  do
4:    $w_j = Av_j$ 
5:   for  $i = 1, 2, \dots, j$  do
6:      $h_{ij} = (w_j, v_i)$ 
7:      $w_j = w_j - h_{ij}v_i$ 
8:   end for
9:    $h_{j+1,j} = \|w_j\|_2$ 
10:  if  $h_{j+1,j} = 0$  then
11:    break
12:  end if
13:   $v_{j+1} = w_j / h_{j+1,j}$ 
14: end for
```
