It is known that the Ruu matrix is a complex conjugate symmetric matrix (the size is 2x2 or 4x4, the following takes 4x4 as an example),

The diagonal elements（） are real numbers, and the non-diagonal elements（）are complex numbers.

The P matrix can be obtained by LDL decomposition of Ruu, as follows

Now we want to multiply the non-diagonal elements of the Ruu matrix by the real number α to get

Where \* represents the Hadamard product of two matrices. The formula of P1 corresponding to Ruu1 is as follows:

Question: Is it possible to directly obtain P1 (or its approximate solution) based on P and α, without calculating LDL decomposition of Ruu1?

中文

已知Ruu矩阵为复数共轭对称阵（大小为2x2或4x4，下文以4x4为例），

其主对角线元素（）为实数，非主对角线元素（）为复数。

对Ruu做LDL分解可求得P矩阵，如下

现欲对Ruu矩阵的非主对角线元素乘以实数，得到

其中\*表示矩阵的Hadamard积。则Ruu1对应的P1计算公式如下：

问题：不对Ruu1作LDL分解，是否能够直接基于P和，经简单运算得到P1（或其近似解）？