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**CHRIS GODSIL,**  
*State Transfer of Graphs*

If  $A$  is the adjacency matrix of a graph  $X$ , then the continuous quantum walk on  $X$  is governed by the unitary matrix

$$H(t) := \exp(itA).$$

We have perfect state transfer from the vertex  $u$  to vertex  $v$  at time  $\tau$  if the  $uv$ -entry of  $H(\tau)$  has absolute value 1. The basic problem is to identify those cases where perfect state transfer occurs. Some progress has been made in finding examples where it does, but the consensus seems to be that it is not common. In my talk I will report on recent work that provides necessary conditions: for example if there is perfect state transfer from  $u$  to  $v$ , then the vertex-deleted subgraphs  $X \setminus u$  and  $X \setminus v$  are cospectral.