

Meeting: 1003, Atlanta, Georgia, SS 24A, AMS Special Session on Design Theory and Graph Theory, I

1003-05-612 **Jaromy Scott Kuhl*** (jskuhl@hotmail.com), 1205 Van Dorn St., Oxford, MS 38655, and
Tristan Denley. *Completing Partial Latin Squares: a conjecture of Häggkvist.*

A latin square is an $n \times n$ grid accompanied with n symbols and filled so that each symbol appears only once in each column and row. A partial latin square is one that is not filled completely. In 1980 Häggkvist presented the following conjecture: If \mathcal{L} is an $nr \times nr$ partial latin square where at most $(n - 1)rxr$ squares are filled, then \mathcal{L} can be completed to an $nr \times nr$ latin square.

Conditions will be presented which confirm that Häggkvist's conjecture holds. In addition to this we will present some ideas which would confirm the conjecture in general. (Received September 24, 2004)