Agrawal's conjecture for triple arrays

Abstract: A triple array is an array in which two 2-designs are merged together such that any row and column contain the same number of common symbols.

Agrawal's conjecture says that (in the canonical case), there is a triple array if and only if there is a symmetric 2-design (SBIBD).

Given a triple array we can construct a SBIBD. But here we will look at approaches and problems surrounding the desirable and still open direction. How to construct an array with these properties from a subset structure.

We will give background and define objects used. The exposition will be elementary and special knowledge of the area will not be assumed.