

962-05-1201

R. Julian R. Abel, Norman J. Finizio, Malcolm Greig and Scott J. Lewis*
(slewis@math.mursuky.edu). *Pitch Tournament Designs and Other BIBD's - Existence Results for the Case $v=8n$.*

A pitch tournament is a resolvable or near resolvable $(v,8,7)$ BIBD that satisfies certain criteria in addition to the usual condition that $v = 8n$ or $v = 8n+1$. Here we establish that for the case $v = 8n$ the necessary condition for pitch tournaments is sufficient for all $n > 1615$, with at most 187 smaller exceptions. The four missing cases for $(v,8,7)$ BIBDs are provided, thereby establishing that the necessary existence conditions are sufficient without exception. Some constructions for resolvable designs are also provided, reducing the existence question for $(v,8,7)$ RBIBDs to 21 possible exceptions. (Received October 02, 2000)