

**Optimising the Injection Scheme for DIAMOND  
from a 3 GeV Booster Synchrotron,**

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UK - The proposed 3 GeV light source DIAMOND will  
utilise a full energy injector synchrotron operating at a  
frequency of up to 10 Hz. A requirement of the  
injection scheme is to minimise the space allocated to  
its components that could otherwise be exploited for  
synchrotron radiation output. A multi-turn system  
using four kickers in a single straight has been  
compared with the alternative, but less attractive,  
distributed kicker scheme relying on the lattice  
quadrupoles to create the required injection bump  
amplitude; high energy light sources elsewhere have  
been forced to adopt the latter solution. The associated  
septum magnet specification has also been assessed. At  
3 GeV both schemes make significant demands on the  
pulsed septum and kicker magnet technology. The  
consequences for the necessary properties of the  
extracted beam from the booster are also examined.