

**SPEAR 3 Lattice Optimization\***, J. CORBETT,  
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3 GeV SPEAR storage ring at SLAC was constructed in  
1972 for high energy physics experiments with  $e^+e^-$   
colliding beams. From the beginning, synchrotron  
radiation experiments were also conducted at SPEAR, and  
since 1989 the storage ring has operated as a dedicated light  
source. The Stanford Synchrotron Radiation Laboratory  
(SSRL) is now investigating an upgrade project -SPEAR 3-  
in which the light source performance would be improved  
by changing the lattice structure and replacing the magnets.  
The new magnet layout fits in the present racetrack-shaped  
tunnel, the magnets rest on the present girders, and the  
synchrotron radiation shines down the present beamlines.  
In this paper, we discuss recent studies on the optimization  
of a double bend achromat (DBA) lattice for SPEAR 3.  
This lattice produces an emittance  $< 20$  nm-radian at  
3 GeV, and has good dynamic aperture.

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