

**The Beam Lifetime Studies by Two Special Schemes,**  
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Hua Univ. and SRRC, Taiwan - The knowledge of the  
relative beam lifetime contributions from the Touschek  
effect and from the gas scattering effects, is very  
important for making the strategies of lengthening the  
beam lifetime. Two unequal bunches method was well  
known for this purpose. However, it is basically the  
single bunch lifetime. In multibunch operation, due to  
the beam size growing up which could be caused by the  
couple bunch effects, the Touschek lifetime could be  
differed with that of the single bunch case by a  
significant amount. We used another method which is  
filling every bucket and enlarge the vertical beam size  
by driving the beam into the difference resonance. In  
this case, the Touschek lifetime was enlarged by a fact  
of 10. This allowed us to estimate the gas scattering  
lifetime which including the ion effects if they exist.  
The ion effects will not show up by two unequal  
bunches method. With the new method, we also  
measured the decrease of gas scattering lifetime due to  
closing down the Wiggler. This is useful knowledge  
for figuring out the lifetime shorten mechanisms due to  
closing the Wiggler.