

1106-VJ-1745      **Benjamin C Gaines\*** ([bencg@math.duke.edu](mailto:bencg@math.duke.edu)), Mathematics Department, Duke University, Box 90320, Durham, NC 27708-0320. *The  $G$ -Hilbert Scheme and the  $(0,2)$ -McKay Correspondence.*

We study first order deformations of the smooth resolutions of orbifolds that are of the form  $\mathbb{C}^3/\mathbb{Z}_r$ , focusing on the cases where the orbifold has an isolated singularity. We prove a lower bound exists on the number of deformations for any crepant resolution of this orbifold. We also show that this lower bound is achieved when the resolution used is the  $G$ -Hilbert scheme, and note that this lower bound can be found using methods from string theory. These methods lead us to a new way to construct the  $G$ -Hilbert scheme using the singlet count. (Received September 15, 2014)