

Abstract Submitted  
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**Defect induced magnetism in semiconductor nanostructures**<sup>1</sup>  
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CHELIKOWSKY, University of Texas — It has been proposed that magnetic semi-  
conductors can be designed by using non-magnetic defects, e.g., through the intro-  
duction of an extrinsic impurity atom that does not exhibit magnetism by itself  
(Phys. Rev. Lett. 99, 127201). In order to address such proposals, we have  
employed a real-space pseudopotential method based on the generalized gradient  
approximation to determine the magnetic properties of boron and aluminum doped  
silicon nanocrystals and nanowires. We will discuss theoretical evidence for defect  
induced magnetism as a function of the nanostructure size. We suggest that defect  
induced magnetism can be strongly enhanced by quantum confinement.

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