

# Modified genetic algorithms to model cluster structures in medium-size silicon clusters

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Genetic algorithms (GA) were used to investigate the stable isomers of silicon clusters. In order to find the cluster structures, a semiempirical energy function was used by the GA that were further optimized using density-functional theory. A different structure with a significantly lower energy was found in the case of Si<sub>36</sub>. The need for global optimization schemes rather than local optimization was demonstrated by the results while searching for stable structures of medium-size silicon clusters.