Interaction between alkali-metal-adatoms on Si(111) surface

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The interaction between alkali metal adatoms on Si(111) surface has been investigated using an *ab-initio* all-electron cluster model calculation for Li, Na and K. It has been found that the adsorbate-adsorbate interaction is repulsive and its magnitude decreases very fast with the distance among adsorption sites. The origin of such repulsive energy is the electrostatic dipole-dipole interaction. The interaction among adsorption sites partially reverts the charge redistribution and polarization effects caused by the isolated adsorbate atoms.

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