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**Phase diagrams of the three-electron quantum dots** ANGBO FANG, XUGUANG CHI, PING SHENG, Dept. of Physics and Institute of Nano Science and Technology, Hong Kong Univ. of Sci. & Tech. — We determine the rich phase diagrams for three-electron quantum dots in both the strong-correlation and the high-magnetic-field regimes, by employing an accurate and efficient non-variational approach. Through the complete separation of spatial rotation from kinematic rotation, the hidden symmetry of the zero angular momentum state is revealed, which is related to the space inversion properties of the system. We also show that although the ground state for arbitrary total angular momentum ( $L$ ) forms an electronic Wigner molecule, the highest low-energy state for large  $L$  is liquid-like in character and beyond the classical description. Our results are compared to recent experimental results and other calculations.

Angbo Fang  
Hong Kong Univ. of Sci. & Tech.

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