

Abstract Submitted  
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**Moments and Lanczos Study of the Anisotropic One Dimensional  $t - J$  Model with Holes** YICK HONG CHAN<sup>1</sup>, JUN HUI LIANG, ZHI HUA CHENG, Kingsborough Community College of CUNY, ERIC ASHENDORF, Brooklyn College, J.D. MANCINI, Kingsborough Community College of CUNY, V. FESSATIDIS, Fordham University, S.P. BOWEN, Chicago State University — In this work we wish to study the ground-state energy as well as the energy gap of the one-dimensional  $t - J$  model

$$H = \sum_l^N \left[ S_{l+1}^z S_l + \frac{1}{2} \alpha \left( S_{l+1}^+ S_l^- + S_{l+1}^- S_l^+ \right) \right]$$

where  $\alpha$  is the anisotropy parameter. We will investigate both the ground-state energy as well as the energy gap as the number of holes is increased for lattices of length 16 sites.

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