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**Lennard Jones Potential for Mesoscopic System** JUTRI  
TARUNA, BRADLEY FUTCH, JORGE PIEKAREWICZ, Florida State University — The liquid-gas phase transition of a Lennard Jones system of  $N = 500$  particles is studied via Molecular Dynamics simulations. Rather than displaying a positive isothermal compressibility — as is demanded of stable systems in the thermodynamic limit — the system develops a “Van der Waals loop”, namely, a region with negative isothermal compressibility. We use various observables as well as state-of-the-art computer renderings to elucidate the nature of this behavior.

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